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NORTHERN INDIAN MUSIC

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NORTHERN INDIAN MUSIC, VOL. TWO. *The Main Rāgās.*
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INTRODUCTION TO THE STUDY OF MUSICAL SCALES.

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In Preparation

THE METAPHYSICAL THEORY OF SOUND AND ITS APPLICATION TO LANGUAGE
AND MUSIC

NORTHERN INDIAN MUSIC

Volume One

THEORY & TECHNIQUE

ALAIN DANIÉLOU

(Śhiva Śharan)



London: Christopher Johnson

Calcutta: Visva Bharati

1949

**FIRST PUBLISHED IN GREAT BRITAIN IN 1949 BY CHRISTOPHER JOHNSON
PUBLISHERS LIMITED, 109 GREAT RUSSELL STREET, LONDON, W.C.1.**

**FIRST PUBLISHED IN INDIA IN THE SAME YEAR BY VISVA BHARATI, 6/3 DWAR-
KANATH TAGORE LANE, CALCUTTA.**

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श्रीः

प्रणम्य शिरसा देवी सरस्वतिविनायकी ।
विचिन्त्य मनसा विष्णुं कर्त्तव्यं कर्त्तुमारभे ॥

“I bow my head to Sarasvatī, Goddess of Learning, who is the flow of Speech, and to Gaṇeśhā, the Guide, Lord of Number. Meditating upon the All-pervading, Viṣhnu, I begin my work.”

FOREWORD

IN attempting to solve the problems that arise in interpreting Sanskrit works on music, I have been led to follow the traditional Hindu version of ancient Indian history, for this alone makes possible a satisfactory classification of the numerous Sanskrit treatises; also it explains particularities which cannot be accounted for if we follow the usual modern theory and dates. Some of the views presented here may, therefore, appear to contradict what is generally held nowadays as historical fact. But it should be remembered that these views are not simply my own. While dealing with the traditional Hindu musical system, we shall also consider its history as it is traditionally understood.

The small numerals after quotations refer to the Sanskrit sources given in Appendix Two.

A. D.

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PART I

THEORY

अथनादस्य चोत्पत्तिवक्ष्ये शास्त्रविवेकतः ।

धर्मार्थकाममोक्षाणामिदमेवैकसाधनम् ॥

“Extracting the essence of the Scriptures, I shall tell the origin of Intelligible Sound which is the only means of achieving the four aims of human life—righteousness, prosperity, pleasure and liberation.” (Saṅg. Darp. 1-29.)

वीणावादनतत्त्वज्ञः श्रुतिजातिविशारदः ।

तालज्ञश्चाप्रयासेन मोक्षमार्गं नियच्छति ॥ (1. प्रथ)

“He who knows the inner meaning of the sound of the lute, who is expert in intervals and in modal scales and knows the rhythms, travels without effort upon the way of liberation.” (Yājñavalkya Smṛiti III, 115.)

CHAPTER I

THE THEORY

पशुः शिशुर्गो वापि नादेन परितुष्यति ।
अनो नादस्य माहात्म्यं व्याख्यातुं केन शक्यते ॥

*"Animals tamed or wild, even children, are charmed by sound.
Who can describe its marvels?" (Saṅg. Darp. I-31.)*

Origins

UNDER the name of *Gāndharvā Vedā*,* a general theory of sound with its metaphysics and physics appears to have been known to the ancient Hindus. From such summaries as have survived till modern times, it seems that the *Gāndharvā Vedā* studied every possible way of using the properties of sound, not only in different musical forms and systems but also in physics, medicine and magic. The rise of Buddhism with its hostility towards tradition brought about a sharp deviation in the ancient approach to the arts and sciences, and their theory had often to go underground in order to avoid destruction. It was at this time that the *Gāndharvā Vedā*, with all the other sacred sciences, disappeared; though the full tradition is said to survive among the mysterious sages who dwell in Himalayan caves.†

Buddhism reacted against the stiffness of the old order, which it tried to "humanize". The Buddhist reformers thought that by destroying the rigid frame of ancient society they would be able not only to preserve its culture but to

* *Transliteration*—The Sanskrit alphabet represents a complete phonetic system. This characteristic is not preserved in the generally accepted methods of transliteration. But changing the usual system as little as possible, we transliterate:

च as ch; छ as chh; च्ह as ch'h; the soft dental ञ as śh; the hard palatal ञ as ṣh; ण as ṛi; ण as ṛi.

The final "dropping" short "a", which in classical Sanskrit exactly corresponds with the French mute "e", bears a short accent. E.g. *Śhivā* should be pronounced almost like the English word *shiver*.

† A short account of the contents of the *Gāndharvā Vedā*, said to have been collected from such sources, has been published in Motilal Gaud's *Hindutvā* (in Hindi), Benares, 1938.

give it a new impulse. They imagined that a choice could be made between values whose importance they recognized and certain social rules and conceptions which they were not ready to accept. Circumstances, however, did not always justify this distinction and under Buddhism the old culture very quickly declined. When the representatives of the old order, who had been able to maintain their tradition underground through the centuries of persecution, arose again, their intellectual and cultural superiority was in many fields so great that Buddhism was defeated. In hardly more than a few decades, Buddhism, by the mere strength of intellectual argument, was wiped out from the whole Indian continent over which it had ruled for a thousand years. It was then (during the sixth and seventh centuries) that an attempt was made, under the leadership of Śhaṅkarācāryā, to restore Hindu culture to its ancient basis.

A number of eminent Brāhmaṇas were entrusted with the task of recovering or re-writing the fundamental treatises on the traditional sciences. For this they followed the ancient system which starts from a metaphysical theory whose principles are common to all aspects of the universe, and works out their application in a particular domain. In this way the theory of music was reconstructed.

In certain cases the number of texts that had been preserved was sufficient and the task of reconstruction was comparatively easy; in other cases it proved almost impossible. Musical theory and the theory of language had been considered from the earliest times as two parallel branches of one general science of sound. Both had often been codified by the same writers. The names of Vaśhiṣṭhā, Yajñavalkyā, Nārada, Kaśhyapa, Pāṇini are mentioned among these early musicologist-grammarians. Nandikeśhvarā was celebrated at the same time as the author of a work on the philosophy of language and of a parallel work on music. His work on language is believed to be far anterior to the *Mahābhāṣyā* of Patañjali (attributed to the second century B.C.)* into which

* The date of Patañjali may however be much earlier. The main modern argument used to fix his date as late as the second century B.C. is based on an example in his grammar (3,2,111) which reads:

"The Yavanā (Ionian) was besieging Sāketā (Ayodhyā), the Yavanā was besieging Madhyamikā."¹ The Hindu historians, however, consider that the term "Yavanā" (Prākṛitā "Yonas"), later used for "Greeks", was a common name for all the people living beyond the North West frontier.

it is usually incorporated, though it is thought to be probably posterior to Pāṇini, who himself, according to modern grammarians, lived not later than the sixth century B.C. The chronology of works on music would seem, however, to place both Pāṇini and Nandikeśhvarā at a much earlier date. The work of Nandikeśhvarā on the philosophy of music is now believed to be lost,* but fragments of it are undoubtedly incorporated in later works. At the time of the Buddhist ascendancy, when so much of the ancient lore had to be

* A small surviving part of an anonymous manuscript in the Bikaner Library, called *Rudrā-damarūdbhavā-sūtrā-vivaraṇam* (published by Mādhava Kṛṣṇa Sarma in the *New Antiquary*, June, 1943), explains the formation of musical sounds on the basis of the Maheśhvarā Sūtrās, which Nandikeśhvarā also takes as the basis of the philosophy of the Sanskrit language. This must either be a fragment of the work of Nandikeśhvarā or a study directly based upon it. The first part of the manuscript is a fragment of another work in no way connected with the second part. It deals with the qualities and defects of singers in verses also found in the *Saṅgitā Ratnākara* of Śhārṅgadevā.

A part of Nandikeśhvarā's work on dancing, the *Abhinayā Darpaṇā*, has been printed (Calcutta 1934, with English translation by Manomohan Ghosh). An earlier translation by Ananda K. Coomaraswamy appeared under the title *The Mirror of Gesture* (Harvard University Press, 1917).

Further fragments of Nandikeśhvarā's technical work on dancing and music, the *Bharatā-arnavā* in particular, lie, unpublished, in the Tanjore and Madras libraries.

"On the Eastern border of this land (India) live the Kirātā-s (aborigines) and on the Western the Yavanā-s." (*Mārkaṇḍeyā Purāṇā*, 57, 8).²

Originally the term seems to have been used for peoples like the Cretans and Myceneans who occupied Asia Minor and the Greek mainland and islands long before the Achean and Dorian invasions. The fact that Western history has kept practically no record of their advanced state of civilization and of their contacts with the East is no proof that these did not exist. A careful study of the Puranic texts referring to the Mediterranean civilizations anterior to Athens and Rome would yield very interesting documents.

By many ancient peoples the word Yavanā was used for inhabitants of Ionia, a country celebrated from very remote times for its twelve (later thirteen) cities, and which apparently included the Greek coast and islands and the Northern coast of Asia Minor. *Genesis* gives the name as *Yovon*

יָוֹן which is thought to refer mainly to the island of Cyprus, which the Babylonians visited at a very early period (circa. B.C. 3750). The name "Yovon", in the Bible, often refers, also, to the lands later inhabited by the Greeks.

The word Yavanā or Ionian also occurs in the 'Tel-el-Amarna Tablets (fifteenth century B.C.) as *Yivana*, and in the cuneiform inscription of Sargon (B.C. 709) as *Javanu*. In the latter case it refers to the island of Cyprus, where it chiefly was that the Assyrians came in contact with the Ionian power.

abandoned, grammatical works were considered more important than musical ones because the grammatical theory was essential for the understanding of the Vedic texts and of all the subsequent philosophical systems. From the earliest times, this theory of grammar had been condensed into aphorisms that could easily be memorized and, when the need arose, transmitted orally. They could thus be kept intact for centuries, in secret, escaping all possible investigation.

Every science could not, however, be easily condensed into aphorisms, and the preservation of the theory of music, among others, had apparently to depend on lengthy texts difficult to memorize entirely; though, from the kind of differences that appear between the various versions of some of them, it seems that these too were transmitted orally over a long period.

The material available for the reconstructive work of the medieval authors consisted in a certain number of these older books on music which they used as a base; but it appears that these medieval scholars had but little knowledge of the physical properties of sound or of the laws of acoustics. This resulted in their attempt to explain, with the most unexpected misconceptions and mistakes, basic principles laid down in the ancient treatises with a rare knowledge of physical as well as metaphysical reality—a knowledge that modern means for the study of sound now allow us to appreciate more fully.

Very like the Chinese philosopher who, knowing that there must be five elements, explains that they are water, air, earth, silk and bamboo, so medieval Sanskrit writers make doubtful assertions about microtonal intervals (*śhrutis*), basic scales (*grāmās*), the correspondences of the notes, and so on. Yet since their attitude was one of respect and faith towards the ancient authors, the explanations alone are mistaken. They did not usually attempt to reshape the theory, which therefore remained in essentials as it was, and they reproduce lengthy passages from the ancient books without alteration. This is of course fortunate for us. Wherever we happen to possess more light on the acoustic basis of these definitions, we can reconstruct the right interpretation and see how accurately these principles were enunciated from the first.

As happens at every epoch, medieval writers tried to and in the ancient books the confirmation of what they believed they knew instead of a description of what they did

not know. This attitude obviously limited their musical theory and confused all the points that dealt with musical forms unknown to them. It reduced the theory to little more than a description of the musical system in use in the India of their day, whereas its purpose was to provide a general theory of sound. This may also explain the difficulties met with by modern musicologists when they wish to bring back within the frame of the medieval theory the musical system in use in India at the present time, a system which in some of its features is quite distinct from the medieval one.

The musical system upon which the Indian "classical music" of to-day is based appears to be even more limited than the medieval one and has also to some slight extent modified its form under influences from outside. And thus, though it is necessarily included in the definitions of the Gāndharvā Vedā—because these definitions refer to acoustic facts and not to any particular system—it is not always in accordance with the explanations of medieval scholars.

In this book, since we are dealing exclusively with the living music of Northern India only such quotations will be given from the classical books both pre- and post-Buddhistic as refer to musical forms still in use. The author hopes to make the general theory of music of the Hindus and the philosophy of sound, as they are explained in the Gāndharvā Vedā, the subject of another study.

*The Antiquity of Indian Music**

It has been said that there is a gap between the Indus civilization (at present believed to date from the third or second millennium B.C.) and the beginning of Buddhist times, about the fifth century B.C.

We are sometimes led to believe that, except for the Vedic texts, the language of which is quite distinct from classical Sanskrit, no texts remain from that enormous period of time. It should however not be forgotten that, according to Hindu tradition, the Vedic texts, at first transmitted orally, had already been written down at a much earlier date: Buddhism (as three centuries earlier Jainism had done) reacted against the use of Sanskrit as an already too ancient priestly language

* See Foreword.

no longer understood by the common people, a language they wanted to replace by more common dialects such as Pāli or Māgadhī, derived from classical Sanskrit through centuries of popular misuse. There is therefore solid linguistic evidence to suggest that a great number of Sanskrit works may be by many centuries anterior to the reformation of Jainism by Pārśhvanāthā at the beginning of the eighth century B.C.* Furthermore, the date given by Hindu tradition for the Mahābhārata war is about 3,000 B.C., a date which seems to be corroborated by the astronomical observations found in many Sanskrit works. This corresponds with the period of Mohenjodaro.

In fact the period extending from the Mahābhārata war to the beginnings of Buddhism may well have been one of the greatest the culture of India has known, and its influence extended then (as indeed it still did much later) from the Mediterranean to China.† Traces of its Mediterranean aspect have been found in the Cretan and Mycenaean remains as well as in Egypt and the Middle East.

The Vedās, which until the beginning of this period had been transmitted orally, were then written down, and, later on, the Epics and Purāṇas. Most of the treatises on the ancient sciences also belong to that age, though many may have been to a certain extent re-shaped later on. Ananda K. Coomaraswamy speaks of this "early Asiatic culture which once extended from the Mediterranean to China and as far south as Ceylon . . . in the second millennium B.C.".‡

* Jainism is considered to have begun from Rikhab Devā, an extremely ancient figure whose life-story is told in the Bhāgavatā Purāṇā. The dates of the two last reformers only of Jainism, Pārśhvanāthā (born in 817 B.C.) and Mahāvīr (born in 599 B.C.), are historically known and it is through them that Jainism is said to have been finally fixed in its present dual form.

† The ancient *Kinnari Vīṇā* or *Kin*, for example, became known in China as the *Khīn*, a stringed instrument said to have been played by the first Emperor, Fu-Hi (circa 3000 B.C.). The *Khīn* is further mentioned in ancient Chinese chronicles such as the *Chī Kī* (second century B.C.) in reference to events of the sixth or seventh century. According to the *Li Kī*, Confucius (551-478 B.C.) always had his *Khīn* with him at home, and carried it when he went for a walk or on a journey.

In *Genesis* (iv, 21 and xxxi, 27) a stringed instrument of the same kind is called *Kinnor* (כִּנּוֹר). David used to play the *Kinnor* as well as the *nebel* (lute).

‡ A. K. Coomaraswamy: *Arts and Crafts of India and Ceylon*, Foulis, 1913.

So far as music is concerned, there is every probability that some of the texts quoted in later works were in existence many centuries before Buddhism. The practice of naming as well as quoting older authorities can allow us to establish a chronology, the author quoted being necessarily more ancient. Whenever we happen to know the date of one author we can thus generally know which authors came before him and which after. A careful study of a number of works which still survive but have not been published and are difficult of access would however be needed to make this chronology complete.

✓ The antiquity of Indian theatrical art and musical theory was well known to the ancient world. According to Strabo (*Geography* x, II, 17) the Greeks considered that music "from the triple point of view of melody, rhythm and instruments" came to them originally from Thrace and Asia. "Besides, the poets, who make of the whole of Asia, including India, the land or sacred territory of Dionysos,* claim that the origin of music is almost entirely Asiatic. Thus, one of them, speaking of the lyre, will say that he causes the strings of the Asiatic cithara to vibrate."

Megasthenes† says that Dionysos "taught the Indians to worship the other Gods and himself by playing cymbals and drums: he also taught them the satyr dance which the Greeks call *kordax*".

"This is because they are, of all peoples, the greatest lovers of music and have practised dancing with great love since the days when Bacchus and his companions led their bacchanalia in the land of Ind." (Arrian: *Exp. Alex.*, VI, 3, 10.)

* Many ancient historians spoke of Dionysos (or Bacchos) as having lived in India. Megasthenes, who came to India in 302 B.C., tells us that the Indians counted 153 kings and 6,042 years between Dionysos and Alexander (who entered the Punjab in 329 B.C.). Similar information is also given by Pliny the Elder who, however, gives the number of years as 6,451. By comparing these Greek dates with those of the dynasties given in the different Purāṇās, several attempts have been made to identify Dionysos with some early figure of Indian History (particularly Manu or Kṛiṣṇā). But from the similarity of the legends it appears that Dionysos must be Śhivā and that the dates refer to one of his chief incarnations, as it is described in the *Śhivā Purāṇā*.

Śhivā is said to have been the first teacher of one of the most important traditions of music and dancing in India. Until quite a late period this tradition seems to have remained distinct from that of the *Gāndhārvā Vedā*. Many Sanskrit works (a few of which are still available) were attributed to Śhivā or his followers.

† Quoted by Arrian in his *Indika*, VII, 8 (written in 150 B.C.).

The Sanskrit Writers on Music

The main Sanskrit treatises on music appear, at first sight, to present a mass of conflicting definitions. Careful study of the divergences and similarities between certain groups of texts, however, shows that these belong to different classes and schools: some are original works based upon coherent theory and accurate experience, the rest more or less adapted compilations. From the point of view of Hindu tradition—one which impartial modern scrutiny seems to support—it is the earlier works which have the greater authority and represent the original theory. Although fragments of several such works are available, most of them now appear to be lost or inaccessible.

Among important landmarks of the literature on music must also be counted portions of certain Purāṇās, particularly the Viṣṇu Dharmottarā, Mārkaṇḍeyā Purāṇā and Vāyu Purāṇā. The Hindus claim a great antiquity for these Purāṇās and this seems to be corroborated by the technical terms used in reference to music. These Puranic texts are however often difficult to read because of the abundance of copyists' mistakes in technical passages.

The Sanskrit authors on music can be divided into four main periods. The first period is that of those whose names are mentioned in the Purāṇās and in the Epics (Mahābhārata and Rāmāyaṇa), the second that of the authors mentioned in the early medieval works alone, and not in the works of the first period. These must necessarily belong to the intermediary age. The third period is that of the authors who wrote between the early medieval Hindu revival and the Muslim invasion, and the last or modern period that of Sanskrit writers under Muslim and European rule. Exact dates can usually be ascertained only for the authors of these two last periods.

The First Period (The Vedic-Purāṇic-Epic Period)

The names of authors belonging to this early period are numerous. The few works that survive allow us to fix the chronology of the most important of them with a certain amount of accuracy, but any attempt at fixing definite dates or periods could only be conjectural. We can safely consider

that the lower limit given by the bulk of Purāṇic and Epic literature places this first period of literature on music in what we may call the Pre-Buddhistic age.

A chronological chart can be built up showing the relative anteriority of authors mentioned or quoted in the works available in full or in fragments (see opp. p. 32). Although it is far from exhaustive, this chart shows the affiliations between the most important Sanskrit writers on music of the early period, which must have extended over many centuries. Most of these early works are archaic in their language.

The few difficulties we meet in establishing their chronology, can in the main be solved.

The Different Nārada-s

There were probably three authors known by the name of Nārada. One, the author of the *Nāradiyā Śhikṣhā*, is probably the earliest writer on profane music any of whose writings have survived in full. He is quoted by all subsequent writers of the early period, who in turn are quoted by later Nārada-s, the authors of the *Sanḡitā Makarandā* and the *Chatvārimśach' hatā Rāḡānirūpaṇam*.

According to tradition, the *Nāradiyā Śhikṣhā* forms part of the later Vedic literature and although some attempts have been made to date this work rather late, there is no solid evidence to make us disbelieve the tradition. The fact that the *Nāradiyā Śhikṣhā* mentions the names of only a few of the earliest authorities on music who are also mentioned in the *Vaśhiṣṭhā* and *Yājñavalkyā Śhikṣhā*s, seems to confirm it as a very early work. If we were to consider the *Nāradiyā Śhikṣhā* a late work we should have to make room for some other very early work of the same description forming the link between Vedic chant and profane music and mentioned by Yāṣṭikā, Nārada II, Kohalā, Mataṅgā and practically all subsequent authors. There seems, however, to be no sufficient reason to doubt the authenticity of the available *Nāradiyā Śhikṣhā*.

The *Pañchamā Samhitā* and *Nārada Samhitā* are probably the work of the later Nārada (Nārada II), the author of the *Sanḡitā Makarandā*.

The Bharatā Problem

The available work of Bharatā, the *Nāṭyā Śhāstrā*, is a compilation which has been variously dated between the second century B.C. and the fourth century A.D. It mentions Kohalā and Dattilā but not Mataṅgā and probably contains fragments of the work of Nandikeśhvarā, Kohalā, etc., and the earlier *Bharatā Śhāstrā*-s. In fact it may be doubted whether a sage Bharatā ever existed. If he did exist he must have been the Bharatā Vṛiddhā (Bharatā the Elder) mentioned by Śhāradātanayā, as distinct from the author of the *Nāṭyā Śhāstrā*. The word "bharatā" means a dance-actor and was used as a common name in the title of all the treatises on stage technique. Thus we hear of Ādi Bharatā, Nandikeśhvarā Bharatā, Arjunā Bharatā, Mataṅgā Bharatā, Kohalā Bharatā, etc. "Bharatā nāṭyā śhāstrā" would then simply mean "the text-book of the dance-actor" and this is very much what it is—a practical compilation of authoritative works on the subject periodically brought up to date.

The *Nāṭyā Śhāstrā* cannot, therefore, be taken as a sure basis for determining chronology and we should not be surprised to find Bharatā himself mentioning as his sons several authors later than the original *Nāṭyā Śhāstrā*, though all of them belong to an early period* or must at least be anterior to the latest recension of the *Nāṭyā Śhāstrā*.

Mataṅgā

It seems at first difficult to know in which period to place Mataṅgā, the author of the *Bṛihaddeśhī*. The text mentions a number of early authors, including Yāśhtikā and Bharatā. It has also an extensive commentary which mentions still further writers, including Nandikeśhvarā, Kohalā and Dattilā. Some

* The tradition is that Bharatā had four sons—Śhāṇḍilyā, Vātsyā, Kohalā and Dattilā.

"I taught the perfect practice (of music) to my sons, Śhāṇḍilyā, Vātsyā, Kohalā and Dattilā." (*Nāt. Śh.* 1-26.)³

"The family of Bharatā-s will be made famous in the future by the Bharatā-s—Kohalā, and, after him, Vātsyā, Śhāṇḍilyā, Dattilā." (*Nāt. Śh.* 36, 70-71.)⁴

These obviously later additions only mean that these four authors are considered the direct recipients of the tradition of Bharatā, and their work has therefore great authority.

medieval and modern authors have considered this commentary the work of Mataṅga himself. But this is unlikely since it mentions Kohalā, who himself, in a passage reproduced by Kallināthā, quotes Mataṅga. The name and the story of the sage Mataṅga are mentioned in the *Rāmāyaṇa* and the *Mahābhārata* and in several Purāṇas. This places him definitely in the early period.

The Three Chaturā-s

A quotation from Tumburu is found in Kallināthā's commentary on the *Saṅgītā Ratnākara* (I, 3, 10-16). The same quotation in the commentary on the 27th śhlokā of Mataṅga's *Bṛihaddeśhī* is, however, attributed to Chaturā. But Chaturā is a name given to Kallināthā himself and this commentary might be thought to be late enough to quote him. But Simhabhūpālā—more than a century before Kallināthā—repeatedly quotes from this commentary on the *Bṛihaddeśhī* which he seems to consider the work of Mataṅga himself. It would therefore appear that the title of Chaturā (clever) was also given to the early writer Tumburu, the same name having been used later for Kallināthā and also for Dāmodarā Miśhrā, the author of the *Saṅgītā Darpaṇa*.

Mātriguptā and Rudraṭā

The Mātriguptā mentioned by Nārada (in the *Chatvārimśach'hatā Rāgānirūpaṇam*, and as Mātraguptā, in the *Saṅgītā Makarandā*) has sometimes been identified with the celebrated poet Mātriguptā of the seventh century. This is not absolutely impossible, though it is unlikely.

Similarly, the Rudraṭā mentioned by the author of the commentary on the *Bṛihaddeśhī* and also by Abhinavā Guptā has been said to be the ninth century author of *Kāvyālaṅkāra*, or Rudrā Bhaṭṭā, the author of *Śhrīṅgaratilakā*.

Such identifications should not be attempted without solid ground. The Sanskrit literature on music extends over so vast a period that similarities of name are bound to occur. The difficulty is rather to distinguish between numerous authors of the same name. We know of at least ten Bhaṭṭā-s, authors

of different works, six *Somā-s* or *Someśhvarā-s*, five *Nārāyaṇā-s*, four *Dāmodarā-s*, etc. Among the works still available, we have two *Śaṅgītā Ratnākarā-s*, three *Śaṅgītā Nārāyaṇā-s*, four *Bharatā Śhāstrā-s*, four *Rāgā Mālā-s*, and so on. Hasty identifications are sure to lead to mistakes such as have already been made in the case of the different *Dāmodarā-s*.

Many of the available works of the early period have been re-shaped over and over again. This is only natural, for they were teachers' text-books and not library records. But to take as an earliest limit for their writing the date of their latest re-shaping, as some over-cautious students have a tendency to do, gives a wholly erroneous picture of musical history.

All that is available of the early works is evidently directly based on the *Gāndharvā Vedā* and the *Śhivā* tradition. In these we find a theory of sound co-ordinated with experienced facts which we can easily grasp. Taking into account the changes that have occurred in the scale, in the tonic and so on, the interpretation of the early works presents no very arduous problem except that of restoring the text where it has been corrupted.

If the commentary on the *Bṛihaddeśhī* really is the work of Mataṅgā the lower limit of the Epic-Puranic period in the chart (opposite p. 32) must be placed before *Gāndharvā Rājā*, otherwise the chronology it shows will not be much affected.

The First Period

Several names mentioned in later works may refer to some of the earliest authors. For example *Pārvatī-pati* and *Śharvā* are names of *Śhivā*: they may stand for *Śhivā*, the first, divine expounder of music, or for some of his later followers; *Māgheśhā* may be *Indrā*, *Kamalāsyakā* may be *Brahmā*. Yet it would be incautious to make such an assertion without evidence since these are names that frequently occur.

The *Kṣhemarājā* mentioned by *Kohalā* cannot be the celebrated disciple of *Abhinavā Guptā*, since *Kohalā*'s lowest possible limit is the fourth century A.D., six centuries before *Abhinavā Guptā*.

The Second Period (Buddhistic)

This period (which we may generally term Buddhistic since, according to the Hindu tradition, Buddhism arose and declined in India within its limits) extends from the Epic-Puranic period to the early medieval Hindu revival.

A few important works that probably belong to the beginning of this period are available (see previous chart). These include extensive fragments of Kohalā.

The lower limit of the early works of the first period is set by the fact that Kohalā and Dattilā are mentioned in the *Nāṭyā Śhāstrā*, the last re-shaping of which, as we have already seen, is variously dated between the second century B.C. and the fourth century A.D., the first of these dates being the more likely.

Very few of the numerous musical works of this second period have so far been found or in any way edited or studied. In most cases we have to content ourselves with authors' names without attempting to establish their chronological relationship. The authors who can safely be attributed to this period are those not mentioned by any writer of the pre-Puranic-Epic period but mentioned as authorities by authors of the tenth, eleventh and twelfth centuries (chiefly Abhinavā Guptā, Śhāradātanayā, Nānyā Bhūpālā, Pārśhvadevā and Śhārṅgadevā).

This gives us a list of names, some of which may however belong to the first period or to the earlier part of the third period.

Writers of the Second (Buddhist) Period

Āstikā, Apisali (author of a *Śhikṣhā*), Uttarā, Uvatā, Umāpati⁺, Kātyāyanā⁺, Kāmadevā, Kumbhodbhavā, Ghaṇṭakā, Chhatrakā, Dattā, Devārājā (may be Devendrā), Drauṇi, Dhenukā, Priyātithi, Bindu Rājā, Bṛihat Kaśhyapā, Bhaṭṭā, Bhaṭṭā Yantrā, Bhaṭṭā Sumānas, Bhaṭṭa Vṛiddhi, Bhaṭṭā Gopālā⁺, Bhaṭṭā Śhubhākarā⁺ (commentator on *Nāradyā Śhikṣhā*), Rahulā, Venā, Vyāsā, Vāchaspati, Śhrī Harṣhā (different from the patron of the seventh century poet Bāṇā), Sakali garbhā, Sūryā (may be Bhāskara), Sureśhvarā,⁺ Someśhvarā I⁺ (different from the two later Someśhvarā-s, authors respectively of *Manasollāsā* and *Saṅgītā Ratnāvalī*).

The Third (Medieval) Period

This period corresponds with the Hindu revival after the decline of Buddhism. All the earliest books of this period are lost. The first available medieval work is the *Abhinavā Bhāratī*, a tenth century commentary by Abhinavā Guptā on the *Nāṭyā Śhāstrā*.

Authors of the Third (Medieval) Period

I

Udbhaṭā (late eighth century): Comm. on *Nāṭyā Śhāstrā*
Lollaṭā (between Udbhaṭā and Abhinavā Guptā, c. 825):

Comm. on *Nāṭyā Śhāstrā*.

Śhaṅkukā (id., c. 850): Comm. on *Nāṭyā Śhāstrā*.

Utpalā Devā (tenth century; Abhinavā's guru's guru).

Nṛisimhā Guptā (Abhinavā's teacher and father).

Abhinavā Guptā (end of tenth century): *Abhinavā Bhāratī*,
comm. on *Nāṭyā Śhāstrā*.

Bhojā (King) (1010–1055).

Simhanā (eleventh century or early thirteenth, before
Hammirā).

Abhayā Devā (a Jain) (1063– ?).

Mammatā (1050–1150): *Sanḡitā Ratnā Mālā*.

Rudrasenā (before Devendrā).

Someśhvarā II (1131): *Manasollāsā* or *Abhilāṣhārthā Chin-
tāmaṇi*.

Lochanā Kavi* (1160): *Rāḡā Taraṅgiṇī*. .

* There has been some speculation about the date of Lochanā Kavi. The *Rāḡā Taraṅgiṇī* bears the date 1082 of the Śhakā era. This would be 1160 A.D. Lochanā Kavi, however, mentions the names of Jayadevā and Vidyāpati. The date of Jayadevā is about 1116 A.D., but the known Maithili poet Vidyāpati is thought to have lived about the fourteenth century. Either Lochanā lived after the fourteenth century, or this name refers to some other Vidyāpati. It appears that there is a local Śhakā era in the East of India according to which 1082 would be 1700 A.D. This would bring Lochanā to a much later date, but against it there is the fact that Lochanā is quoted by Hṛidayā Nārāyaṇā (c. 1667) who himself is quoted by Bhavā Bhaṭṭā (c. 1700).

The work of Lochanā has therefore been dated either 1160 A.D., or fourteenth century (after Vidyāpati), or 1700 A.D.

Since the last date seems impossible, it is likely that the earlier of the remaining dates is the true one and that as some Bengali scholars assert, there was an earlier Vidyāpati.

Paramardī (1165–1203 ?).

Devendrā (after Bhojā): *Śaṅgītā Mukṭāvalī*.

Someśhvarā III (1174–1177): *Śaṅgītā Ratnāvalī*.

Śhāradātanayā (c. 1200): *Bhāvā Prakāśhā*.

Nānyā Bhūpālā or Nānyā Devā (eleventh or twelfth century, between Abhinavā Guptā and Śhārṅgadevā): *Sarasvatī Hridayālamkāra*.

Jaitrā Simhā (c. 1213? before Hammirā): *Bharatā Bhāṣhyā*.

Śhārṅgadevā (1210–1247): *Śaṅgītā Ratnākarā*.

II

Jayasimhā (before Hammirā).

Gaṇapati (c. 1253? before Hammirā).

Jayasenā (c. 1253): *Nṛitā Ratnāvalī*.

Hammirā (1283 or 1364): *Śaṅgītā Śhṛiṅgārā Hārā*.

Gopālā Nāyakā (1295–1315).

Pratāp (King ?): *Śaṅgītā Chūḍāmaṇi*.

Palkuriki Somanāthā (thirteenth–fourteenth century):

Paṇḍitārādhyacharitā, Bāsava Purāṇā.

Vasantā Rājā (King Kumārāgiri, before fourteenth century):

Vasantā Rājīyā Nāṭyā Śhāstrā.

Digambarā Suri (before Pārśhvadevā).

Pārśhvadevā (before Simhā Bhūpālā, after Bhojā and Paramardī): *Śaṅgītā Samayā Sārā*.

Śhārṅgadharā (1300–1350): *Śhārṅgadharā Paddhati*.

Haripālā (1309–1312): *Śaṅgītā Sudhākarā*.

Śhrī Vidyā Chakravartin (early fourteenth): *Bharatā Saṅgrahā*.

Sudhākalasā (1323–1349): *Śaṅgītā Upaniṣhad*.

Simhabhūpālā (c. 1330): *Sudhākarā*, a comm. on *Śaṅgītā Ratnākarā*.

Viśhveśhvarā (c. 1330).

Vidyāraṇyā (1320–1380): *Śaṅgītā Sārā*

Vemā Bhūpālā (late fourteenth–early fifteenth century): *Śaṅgītā Chintāmaṇi*.

Gopendrā Tippā Bhūpālā (1423–1446): *Ṭālā Dīpikā*.

Kumbhakarnā (1433–1468): *Śaṅgītā Rājā, Śaṅgītā Kramā Dīpikā*.

Kallināthā (middle fifteenth century): *Kalānidhi*, a comm. on *Śaṅgītā Ratnākarā*.

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Kamalā Lochanā (c. fifteenth ?): *Saṅgītā Chintāmaṇi*,
Saṅgītāmṛitā.

Keśhavā (between 1240 and 1664): comm. on *Saṅgītā Ratnākarā*.

Rāmānandā Nārāyaṇā Śhivā Yogin (after thirteenth century): *Nāṭyā Sarvasvā Dīpikā*.

The longest work of the medieval period is the *Saṅgītā Ratnākarā* of Śhārṅgadevā (1210-1247 A.D.). It has several valuable commentaries, two of which—by Simhabhūpālā (c. 1330) and by Kallināthā (fifteenth century)—have been published.* The *Rāgā Taraṅgiṇī* of Lochanā may also belong to this period.

The Fourth (Modern) Period

With the advent of foreign invasions musical culture quickly decays. A few authors, however, either attempt to restate the old theory or to re-shape it so that it may agree with a changing practice. Musicians had found many points of the reconstructed medieval theory irrelevant when it was confronted with the musical practice of their day. A series of attempts was therefore made to reconcile it with the facts. The chief works of this kind are the *Svarā-melā-Kalānidhi* of Rāmāmātyā (1549), the *Rāgā Vibodhā* of Somānāthā (1610), the *Saṅgītā Darpaṇā* of Dāmodarā Miśhrā (1625) and especially the *Chaturdaṇḍī Prakāśhikā* of Veṅkaṭā Makhin (1620) the systematizer of Karnatic music. But these efforts only added to the confusion, for in their attempt to explain apparent contradictions these late authors often forced very far-fetched interpretations upon the ancient technical terms and theories.

There followed a series of more recent works which complete

* In the first chapter of his *Saṅgītā Ratnākarā*, Śhārṅgadevā gives the following list of his chief predecessors:

"Sadāśhivā, Śhivā, Brahmā, Bharatā, Kaśhyapā Muni, Matāṅgā, Yāśhtikā, Durgā-śhakti, Śhārdūlā, Kohalā, Viśhākhilā, Dantilā (Dattilā), Kambalā, Aśhvatarā, Vāyu, Viśhvāvasu, Rambhā, Arjunā, Nārada, Tumburu, Āñjaneyā, Mātṛiguptā, Rāvaṇā, Nandikeśhvarā, Svāti, Guṇā, Bindurājā, Kṣhetṛā-rājā, Rāhalā, Rudratā, Nānyā Bhūpālā, and king Bhojā, Paramardi and Someśhā the world emperor; then the commentators of Bharatā: Lollatā, Udbhaṭā, Śhaṅkukā, Bhaṭṭā, Abhinavā Guptā, the famous Kirtidharā and many more in the past were experts in music."⁵

the link between ancient and modern music. In Northern India the *Saṅgītā Pārijātā* of Ahobalā (c. 1690) is considered the most important of these.

Chief Writers of the Fourth (Modern) Period

- Harināyakā (c. 1500): *Saṅgītā Sārā*.
 Meṣhākarnā (before 1509): *Rāgā Mālā*.
 Madanāpālā Devā (c. 1528) *Ānandā Sañjīvanā*.
 Lakṣmī Nārāyaṇā (first quarter of the sixteenth century):
Saṅgītā Sūryodayā.
 Lakṣmīdharā (sixteenth century): *Bharatā Śhāstrā Granthā*.
 Rāmāmātyā (1550): *Svarā-melā-kalā-nidhi*.
 Puṇḍarikā Viṭṭhalā (late sixteenth century): *Śhadrāgā Chandrodayā*, *Rāgā Mālā*, *Rāgā Mañjarī*, *Nartanā Nirṇayā*.
 Tanappāchāryā (Tān-sen ?) (guru of Veṅkaṭā Makhin. c. 1600).
 Mādhavā Bhaṭṭā (before 1610): *Saṅgītā Chandrikā*.
 Somānāthā (1610): *Rāgā Vibodhā*.
 Govindā Dikṣhitā (1614): *Saṅgītā Sudhā*.
 Govindā (?): *Saṅgrahā Chūdāmaṇi*.
 Veṅkaṭā Makhin (c. 1620): *Chaturdaṇḍi Prakāśhikā*.
 Dāmodarā Miśhrā (1625): *Saṅgītā Darpaṇā*.
 Hṛidayā Nārāyaṇā Devā (c. 1667): *Hṛidayā Kautukā*,
Hṛidayā Prakāśhā.
 Bāsavā Rājā (1698–1715): *Śhivā Tattvā Ratnākarā*.
 Ahobalā (before Śhrī Nivāsā and Bhavā Bhaṭṭā. First half of seventeenth century or earlier): *Saṅgītā Pārijātā*. (translated into Persian in 1724).
 Śhrī Nivāsā (late seventeenth century): *Rāgā Tattvā Vibodhā*.
 Abhilasā (seventeenth century): *Saṅgītā Chandrā*.
 Jagaddharā (fourteenth to seventeenth century): *Saṅgītā Sārasvā*.
 Kamalākarā (later than 1600): *Saṅgītā Kamalākarā*.
 Kikarājā (seventeenth century): *Saṅgītā Sāroddhārā*.
 Jagajjyotirmallā (seventeenth century): *Saṅgītā Sārā Saṅgrahā*, *Saṅgītā Bhāskarā*.
 Raghunāthā Bhūpā (seventeenth century): *Saṅgītā Sudhā*.
 Naṅgā Rājā (?): *Saṅgītā Gaṅgā Dharanā*.
 Vedā or Muḍavedā (during the reign of Śhāhājī 1684–1712):
Saṅgītā Makarandā, *Saṅgītā Puṣhpāñjali*.

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Vaṅgamaṇi (seventeenth century): *Saṅgītā Bhāskarā*.

Śhukambharā (before eighteenth century): *Saṅgītā Dāmo-darā*.

Somanāryā (after 1609): *Nāṭyā Chūḍāmaṇi*.

Bhāvā Bhaṭṭā (alias Anuṣṭupā Chakravartī after Ahobalā. c. 1700): *Anupā Saṅgītā Aṅkuśhā*, *Anupā Saṅgītā Ratnākarā*, *Anupā Saṅgītā Vilāsā*.

Tulajādhipā (ruled 1729-35): *Saṅgītā Sārāmṛitā*.

Nārāyaṇā (King) (late eighteenth century): *Saṅgītā Nārā-yaṇā*.

Kavi-ratnā Nārāyaṇā (eighteenth century): *Saṅgītā Sarani*.

Govindā (eighteenth century): *Saṅgītā Śhāstrā Saṅkṣhepā*.

Gopināthā Kavi Bhūṣhaṇā (late eighteenth century): *Kavichintāmaṇi*.

Pratāp Singh (1779-1804): *Saṅgītā Sāgarā*.

Balarāmā Varmā (ruled 1798-1810): *Balā-rāmā-Bharatā*.

Śhrikanṭhā (late eighteenth century): *Rasā Kaumudī*.

Nineteenth and Twentieth Centuries

Rāmā varmā Mahārājā: *Saṅgītā Kṛitayah*.

Appā Tulsi: *Abhinavā Tālā Mañjarī*, *Rāgā Chandrikā*, *Rāgā Kalpadrumāṅkurā*, *Saṅgītā Sudhākarā*.

Kṛiṣṇānandā Vyāsā: *Rāgā Kalpadrumā* (1843).

Appalāchāryā: *Saṅgītā Saṅgrahā Chintāmaṇi*.

Sourindrā Mohan Śharmā (Rājā Tagore): *Saṅgītā Sārā Saṅgrahā* (1875).

Viṣṇu Śharmā (Paṇḍit Bhātkhaṇḍe): *Abhinavā Rāgā Mañjarī* (1921), *Śhṛīmallakṣhyāsaṅgītam* (1921). •

Main authors in North Indian Languages other than Sanskrit

Rājā Mānsingh Tomar (1486-1518): *Mānā Kautuhalā* (Hindi).

Tān Sen (c. 1549): *Rāgā Mālā* (Hindi).

Śhṛī Rāmā Mallā: *Rāgā Vichārā* (Hindi).

Harivallabhā: *Saṅgītā Darpaṇā* (Hindi) (mss. dated 1673).

Gaṅgā Rām: *Setū* (comment. on Saṅg. Ratn.) (Hindi).

Deo Kavi: *Rāgā Ratnākarā* (1673) (Hindi).

THE FIRST PERIOD

SĀMĀ VEDĀ

GĀNDHARVĀ VEDĀ

The teachers of the Gāndharvā Vedā

THE ŚHIVĀ TRADITION

ŚHIVĀ
Śhankarā
Śhambhu
Parameshthi
Vighneshā
Śhāshānikā
Śhāshimauli
Indrā

Chandī
Shanmukhā
Bhṛīngī
Kuverā
Vikramā

=Gauri
Pārvati

Mahādevā
Vallabhā
Śhārdūlā. 1.

Sadā Śhivā+
Svati

NANDIKESHVARĀ

Rāvaṇā

Vāyu
(Purāṇā?)

Mātraguptā

Rāmāyaṇā, Mahābhārata, Purāṇās

SECOND PERIOD

Kirtidhārā
Āchāryā

Bhaṭṭā Tanḍu

Śhārdūlā. 2.

Kshemarājā
Lohitā Bhaṭṭakā
Sumantu

Kohalā+

Devendrā
Durgā śhakti+

Gaṇeshvarā
Pārvatīpatī
Sharvā

Vishākhilā+

Vātsyā
Vāsuki
Śhāṇḍilyā

Dattilā+

Nārada II+
(Sang. Mak.)

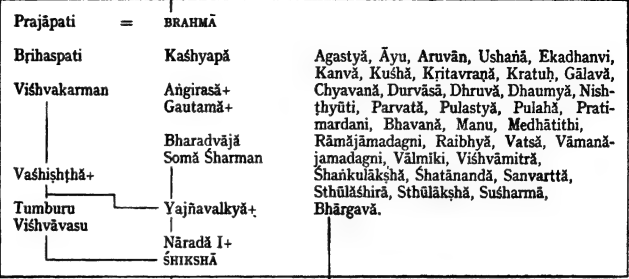
Rudratā
Chaturā+

Māgheshā
Girisutā

Gāndharvā rājā+

Nārada III+
(Chat. Rāga)

Kālidāsā+



Ātreya
Bharadvajā
Jāmadagni

THE HANUMANA (VAISH-
NAVA) TRADITION

Atri, Kapilā, Bhṛigu

= HANUMĀNĀ

Āṅgadā, Kinnareśhā, Kuśhikā,
Gupā, Sarasvatī, Bali,
Yakṣhā, Dakṣhā, Vyālā,
Samudrā, Śhāshi, Bhāskarā,
Shauri, Gopipati, Śhrināthā,
Śhrivatsā, Hari. 1, Hari 2.
Harishchandra

Chitrārathā
Gāndharvā rājā

Arjunā Rambhā

Kshetrapālā
Ugrasenā

NOTE: Authors by whom some writing is available, if only a verse, are marked with an +.

- Saiyid "Abd-al Wali" Uzlat: *Rāgā Mālā* (1759) (Hindusthani).
 Kavi Kṛiṣṇṇā: *Rāgā Kutuhalā* (1781) (Hindi).
 Maharājā Sawai Pratāp Simhā Devā of Jaipur (1779-1804): *Saṅgītā Sārā* (Hindi).
 Muhammad Rezza: *Nāgmat-e-Asaphi* (1813) (Persian).
 Rādhā Mohan Sen: *Saṅgītā Taraṅgā* (1818) (Bengali).
 Diwān Lacchhīrām; *Buddhi Prakāśhā Darpaṇā* (1823) (Hindi).
 Kṛiṣṇānandā Vyāsā Devā: *Rāgā Kalpadrumā* (1842-1849) (Hindi and Bengali).
 Chhatrā Nṛpati: *Padā Ratnāvalī* (1854) (Hindi).
 Chunni Lālji Gossain: *Nādā Vinodā* (1896) (Hindi).
 Bhānu Kavi (Jagannāth Prasād): *Kāvya Prabhākarā* (1909) (Hindi).

Northern and Southern Music

देश देश के भेद से विषय विषय है नाच ।

"Because countries differ, things have different names."
(Rāgā Kalpadrumā):

The later medieval author Rāmāmātyā wrote, in 1550 A.D., "The science of music has both in theory and in practice degenerated into conflicting views." (*Svar. Kal.* 1, 24.)⁶

Though the many schools of music in India to-day each lay claim to the same ancient treatises, there are important differences in the music of the various parts of India. Hardly any of the modes of South Indian music are exactly identical with those of North Indian. Even in the North, rāgās and styles greatly differ from one province to another. Besides, there remain in many regions, in certain valleys of the Himalayas in particular, archaic forms of music with an upper tonic and a descending scale the study of which would be of great interest for the understanding of ancient music. Yet whatever these differences may be, they should not be over-estimated. It should be borne in mind that all these musical systems are but variations in the application of one common musical theory. They all pertain to the modal system of music expounded in the ancient treatises and their differences are not structural but merely differences in style or classification.

NORTHERN INDIAN MUSIC

It is a common saying in South India that Southern music represents the more ancient school while Northern music has evolved under outside influences. Except on very minor points, this opinion does not, however, agree with the facts. South Indian music was subjected to systematic reforms, one of the main reformers being Veṅkaṭā Makhin in the seventeenth century. North Indian classical music, on the other hand, though it lent itself easily to temporary fashions, did not attempt to systematize them and seems to have remained very much what it was in spite of changes. It still conforms to-day with the definitions of the most ancient books.

The many stories that tell how the various styles of North Indian music were invented by musicians of the Muhammadan period have probably no basis in reality. Under Muslim rule, age-old stories were retold as if they had happened at the court of Akbar, simply to make them more vivid, and in conformity with the fashion of the day. Such transferences of legend are frequent everywhere. In Western countries, many a pagan god in this way became a Christian saint and many ancient legends were rearranged to fit into a Christian world. Some episodes in the life of the Buddha, for example, found their way into the *Lives of the Saints* where the Buddha appears under the name of St. Josaphat.

* * *

The impartial ear of sound-measuring instruments makes one marvel at the wonderful accuracy of the scales used by the great "Ustads" of Northern India—scales which in every way conform with the requirements of ancient Hindu theory. To say that they pertain to, or have been influenced by, the Arab or the Persian system shows a very superficial knowledge of the subject. These systems, originally mostly derived from Indian music, have become so reduced and impoverished in comparison with it that no one can seriously speak of their having had any influence on its development—unless one is referring only to the setting of certain types of poetry or to certain mannerisms or ways of sitting or of placing the voice. In fact the whole of the theory and most of the practice of Arab as well as Persian music is the direct descendant of the ancient Turkish music. At the beginning of the Muslim era, the Arabs themselves had hardly any musical system worth

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mentioning, and all the Arabic theoreticians—Avicenna,* Al-Farabi, Safi ud'din, and others—are claimed by the Turks as Turkish in culture if not always in race. In fact, they merely expounded in Arabic the old Turkish system interpreted in the light of Greek theory. This Turkish system was well known to medieval Hindu scholars who often mention it (under the name of Turuṣhkā) as a system closely allied to Indian music. As I have explained elsewhere,† the seventeen intervals of the octave, as used by the Arabs, are identical with seventeen of the twenty-two Indian śhrutis, and there is no modal form in Arabic music which is not known to the Hindus.

* Avicenna was born about 980 A.D. in Balkh, in what is now known as Afghan Turkestan and, though his father is said to have been a Persian, the Turks claim him as their own in language and culture.

† See the author's *Introduction to the Study of Musical Scales*, p. 126.

CHAPTER II

THE NATURE OF SOUND

सुनिनि सुगनिधानं दुःखितानां विनोदः
श्रवणद्वयद्वारी मन्मथस्याग्रदूतः ।
अतिचतुरसुगम्यो बल्लभः कामिनीनां
जयति जयति नादः पञ्चमश्रोतवेदः ॥

“Sound (Nāḍā) is the treasure of happiness for the happy, the distraction of those who suffer, the winner of the hearts of hearers, the first messenger of the God of Love. It is the clever and easily obtained beloved of passionate women. May it ever, ever, be honoured. It is the fifth approach to the Eternal Wisdom, the Vedā.” (*Saṅgītā Bhāṣyā*.)

ALTHOUGH the philosophy of sound is given a very important place in all the ancient treatises on music, we do not propose to deal with it very extensively here, for it is beyond the scope of this book. We shall limit ourselves to brief definitions of sound and of the different kinds of music, and then pass directly to practical description of the different elements that unite to form the Indian musical scales.

Intelligible Sound (Nāḍā)

Sound is said to be of two kinds, one a vibration of ether, the other a vibration of air. The vibration of ether, which remains unperceived by the physical sense, is considered the principle of all manifestation, the basis of all substance. It corresponds with what Pythagoras called the “music of the spheres” and forms permanent numerical patterns which lie at the very root of the world’s existence. This kind of vibration is not due to any physical shock, as are all audible sounds. It is therefore called anāhatā, “unstruck”. The other kind of sound is an impermanent vibration of the air, an image of the ether vibration of the same frequency. It is audible, and is always produced by a shock. It is therefore called āhatā or “struck”.

Thus the *Saṅgītā Makarandā* (I, 4-6) says:

“Sound is considered to be of two kinds, unstruck and

struck; of these two, the unstruck will be first described.

"Sound produced from ether is known as 'unstruck'. In this unstruck sound the Gods delight. The Yogis, the Great Spirits, projecting their minds by an effort of the mind into this unstruck sound, depart, attaining Liberation."

"Struck sound is said to give pleasure, 'unstruck' sound gives Liberation." (*Nārada Purāṇa*).⁸

But "this (unstruck sound) having no relation with human enjoyment does not interest ordinary men." (*Śh. tat. Ratn.* 6, 7, 12.)⁹

Not all audible vibrations are musical sounds. The sounds used in music are those whose mutual relations form an image of the basic mathematical laws of the universe. Thus musical sounds reproduce the first creation of the Primordial Intellect. This creation is at the same time a rhythm and a thought. In correspondence with this, the main characteristic of musical sounds is that, although they form simple physical relations, yet at the same time they convey ideas, they are expressions. This is why the sound of music is called "Nāḍā", "intelligible sound", and is said to result from the union of physical breath with the fire of intellect.

"The syllable 'Na' means breath, the syllable 'da' the fire (of intellect). Born of the union of breath and fire, intelligible sound is called Nāḍā." (*Saṅg. Mak.* 4, 18, reproduced in *Saṅg. Ratn.* 1, 3, 6, and *Saṅg. Darp.* 1, 39.)¹⁰

The Different Kinds of Musical Sound

In musical sound three main elements are usually considered—intensity, pitch and timbre.

Intensity is the relative strength of the sound, whether soft or vigorous.

Pitch is defined by the interval or the number of vibrations (śhrutis).

Timbre is the resonance of harmonics which differentiates the sound of various instruments or voices.

Timbres are classified into five main categories:

"Struck sounds are known to be of five kinds—produced by the nail (strings), by wind (flutes), from leather (drums), from metal (percussion-instruments) or from the body (the voice)." (*Saṅg. Mak.* 1, 7.)¹¹

Sacred and Secular Music

Music is of several kinds, each of which, according to its aim, follows distinctive rules. Certain combinations of sound help mental concentration and spiritual development. These are used in the higher form of sacred music which, in India, is connected with the singing of the Sāmā Vedā. The theory of this sacred art is kept very secret for its power is said to be great.

Some aspects of the higher theory of sound are, however, often brought into practice for magical ends, for the treatment of diseases, or in taming dangerous animals. Most village magicians know how to utilize with great efficacy the psychic and hypnotic effect of certain sounds.

But there are other kinds of sound-relations which merely give pleasure, evoking tender emotions and pleasing ideas. Only such kinds of sound come within the scope of secular or Deśhī music, with which alone we are here concerned.

The following are the chief terms used in ancient books to define the different kinds of music:

GĪTĀ (Music):

"A particular arrangement of sounds which is pleasing [to hear] is called music (gītā). It is of two kinds—sacred or celestial (gāndharvā) and profane (gānā)." (*Saṅg. Ratn. II, 4, 1* reproduced in *Svar. Kal. 2, 6.*)¹³

GĀNDHARVĀ (Sacred or Celestial Music):

"That (music) which, sung by the celestial musicians or by those who know the theory of sacred music, has come to them through the beginningless tradition, and which is the sure means of attaining Liberation, is known to the sages as Celestial (gāndharvā)." (*Saṅg. Ratn. II, 4, 2, and Svar. Kal. 2, 7.*)¹³

This celestial music is also called the "music of contemplation" (mārgā),* and it is said to be composed in accordance with the cosmic laws of which physical harmony is but a reflection.†

"That music, source of [all] development, which, in the beginning, was seen by the Creator in His contemplation and

* The derivation of the word *mārgā* is given by Kallināthā: "Mārgā means 'to contemplate'".¹⁴

† The correspondences between spoken and musical sounds according to Mārgā theory are given in the *Rudrā-ḍamarūdbhavā-sūtrā-Vivaraṇam.*

afterwards performed by Bharatā and the other seers in the resplendent presence of Śhambhu (Śhivā), the Giver of Peace, is called the music of contemplation (mārgā).” (*Chat. Rāgā*. I, 8-9; and *Saṅg. Ratn.* I, I, 22-23.)¹⁵

GĀNĀ (Profane Music):

“That (music) which is composed according to rules by experts, which is sung in the modes of secular or worldly music (deśhī rāgās), and which charms the people is *gānā*, profane music’.” (*Saṅg. Ratn.* II, 4, 3 and *Svar. Kal.* 2, 9.)¹⁶

DEŚHĪ (Secular Music):

“The song, dance and play of instruments, different from country to country and performed as their people please, which charms the heart, is called *deśhī* (secular).” (*Chat. Rāgā*. I, 10; and *Saṅg. Ratn.* I, I, 23.)¹⁷

Mataṅgā Muni considers that the word *deśhī* (worldly) applies to all earthly music. “Sound (*dhvani*) goes everywhere in every place, hence it is called *deśhī*.” (*Bṛihaddeśhī* I, 2.)¹⁸

“All the world, animate or inanimate, is subject to sound (*dhvani*). Sound is divided into two kinds—manifest and unmanifest. Manifest is the sound that comes to the lips in the form of a ‘melodic movement’ (*varṇā*), giving rise to *deśhī* (secular) music.” (*id.* I, 12.)¹⁹

CHAPTER III

THE SCALE

The Tonic or Drone

ALL music is based upon relations between sounds. These relations can, however, be worked out in different ways,* giving rise to different groups of musical systems, each of which has possibilities of expression peculiar to itself.

The modal group of musical systems, to which practically the whole of Indian music belongs, is based on the establishment of relations between diverse successive sounds or notes on the one hand and, on the other, upon a permanent sound fixed and invariable, the "tonic".

Contrary to common belief, modal music is not merely melody without accompaniment, nor has a song or melody, in itself, anything to do with mode. The modes used in the music of the Christian Church are modes only in name, though they may have been real modes originally. But much of Scottish and Irish music, for example, is truly modal: it belongs to the same musical family as Indian music and is independent of the Western harmonic system.

Indian music, like all modal music, thus exists only by the relations of each note with the tonic. It is this relation that determines whether a given note is a minor third, a fifth, a seventh or a fourth. The relation with the tonic, in fact, determines the expression of any given sound. The tonic must therefore be constantly heard. It can either be kept in the background like a drone or repeated at very frequent intervals, as is generally done in playing a stringed instrument. It should be remembered that the drone is not merely intended to keep the singers in tune, so that they may attack always at the correct pitch, but it is the key to all modal expression. So long as the hearer has not entirely identified himself with the tonic, but still perceives drone and melody as separate entities, it is impossible for him to follow or understand the meaning and the beauty of modal music.

* See the author's *Introduction to the Study of Musical Scales*, p. 21.

It appears that at different periods different notes were taken as the starting-point of the scale. But the Ṣhaḍjā (Sa, C), the tonic of all modern music, seems to have been considered as such since medieval times.

“Ṣhaḍjā (Sa, C) is the first of all the notes and so it is the main or chief note.” (Simh. Comm. on *Śaṅg. Ratn.* 1, 4, 6–8.)²⁰

Although certain notes are more usually chosen as the tonic, any sound, whatever its pitch, becomes the tonic of scales that are built upon it. Ṣhaḍjā (the tonic), which we here always transcribe as C, has not a fixed pitch like the C of keyboard instruments. Thus:

“Dattilā explains that the Ṣhaḍjā (the tonic) may be established at will at any pitch (on any śhruti) and that, by relation with it, the other notes should be established at the proper intervals.” (Simh. Comm. on *Śaṅg. Ratn.* 1, 4, 15–16.)²¹

But a common tonic is necessary so that the rāgās, all built upon it, may be easily compared. In the notations of rāgās which form the second volume of this book, the tonic in every case is C, since that is usually considered the first note of the modern Western scale, just as Sa (in present-day music always the tonic) is the first note of the present Indian scale.

With C as tonic, the white keys of any keyed instrument, such as the piano or organ, give approximately the major mode or unaltered (śhuddhā) scale, the scale of Bilāval in modern Indian music. Then the different modes can easily be visualized as modifications of this basic (śhuddhā) scale.

The fact that the tonic used by most singers is lower—often B flat (Ni komalā)—is of minor importance. Once the real nature of each mode has been properly understood (and musical practice shows that this is easier if the tonic is always C) the modes can be transposed into any pitch that may be suitable for different voices or instruments.

The Seven Svarās (Notes)•

The word “note”, by which we here translate *svarā*, is usually taken to mean merely a certain pitch of sound; but the word *svarā* means a pitch of sound plus an expression, so

it would be more correctly rendered as "expressive note". As Mataṅga says:

"The sound that generates an expression is a svarā, a note." (*Bṛihaddeśhī* comm. on 1, 63.)²²

The derivation of the word "svarā" is given as follows:

"The word svarā (note) is authoritatively known to mean 'that which shines of itself'—from *rājri* (to shine) with the word *svā* (self) as prefix." (Mataṅga, *Bṛihaddeśhī* 1, 63.)²³

Indian music recognizes seven main and two secondary notes or svarās. These notes represent definite intervals and, as such, form the basic or "natural" (śhuddhā) scale. They can, however, be raised or lowered to form other scales. In that case they are considered "altered" (vikṛitā). The notes that form the basic scale are called pure (śhuddhā); notes lowered by half a tone are said to be komalā (soft=flat); notes raised by half a tone are called tivrā (sharp).

According to the Indian theory, the sounds of music are first perceived as relative pitches or intervals. It is only when their action has lasted for some time that these intervals convey to the mind an idea or an expression. Hence the arithmetical classification of sounds as intervals is considered prior to, and the basis of, their musical classification as "expressive notes". This differentiation, which was known to the ancient Greek as well as to the ancient Indian theorists, explains why the śhrutis, or intervals, are considered the basis of the svarās or notes, or (in Greek terms) why the enharmonic is considered the basis of both chromatic and diatonic.

Mataṅga says:

"Ṣhaḍjā (C) and the other notes (svarās) are always manifested through the 'interval they form with the tonic', their śhrutis, just as a pitcher in the dark is made manifest by a lamp." (*Bṛihaddeśhī* 1, 36.)²⁴

The commentary on the *Rāga Vibodhā* (1, 14) adds: "What then constitutes a note, a svarā? What is the particularity of these seven sounds? It is their intelligibility, their capacity to please the mind, to appeal to the consciousness of the hearer. And that they do this of themselves, without external aid." Niḥśhaṅkā (Śhārṅadevā) says:

"Sound is first heard as an interval, a śhruti; but the resonance that immediately follows, conveying of itself (without external aid), an expression to the mind of the hearer, is

called a 'svarā', a 'musical note'." (*Sanḡ. Ratn.* 1, 3, 24-25.)²⁶
And:

"The expressive sound, attractive and pleasing, which resounds immediately after the exact interval (the śhruti) has manifested itself, is called svarā (note)." (*Sanḡ. Darṡ.* 1, 57.)²⁸

The notes are seven in number.

"From the [twenty-two main] intervals (śhrutis) come the seven notes (svarās) called Śhaḍjā, Rīṣabhā, Gāndhārā, Madhyamā, Pañchamā, Dhaivatā, Niṣhādā." (*Chat. Rāgā.* 1, 18-19; *Sanḡ. Darṡ.* 1, 167; *Śh. tat. Ratn.* 6, 7, 22-23.)²⁷

"Others call them (for short):

Sa(Do), Ri(Re), Ga(Mi), Ma(Fa), Pa(Sol), Dha(La), and Ni(Si)." (*Sanḡ. Darṡ.* 1, 168.)²⁸

These notes, classified according to their relative importance, form the different parts of the "person" of the modal scale (mūrč'hanā).

"The note Sa (Do, the tonic) is said to be the soul, Ri(Re) is called the head, Ga (Mi) is the arms, Ma (Fa) the chest, Pa (Sol) the throat, Dha (La) the hips, Ni (Si) the feet. Such are the seven limbs of the modal scale." (*Nārādā Samhitā* 2, 53-54.)²⁹

"These notes, as a rule seven, correspond, in the view of Maṭaṅgā, with the seven basic elements of the physical body, and issue from the seven centres of the subtle body (chakrās)." (*Kall. comm. on Sanḡ. Ratn.* 3, 23.)³⁰

An interesting way of defining the intervals represented by the svarās or notes of the unaltered (śhuddhā) scale is based on the cry of certain animals.

Most animals have a distinct cry based on two notes. If we consider the lower note as the Sa (Do), the higher note will give us a second, a third, a fourth, etc. This can be very easily verified by observation. Thus:

"Śhaḍjā (the octave) is sounded by the peacock; the next note Rīṣabhā (the major second) is uttered by the chāṭakā bird. The goat bleats Gāndhārā (the minor third),* the heron (krauñchā) cries Madhyamā (the perfect fourth). In the season of flowers, Pañchamā (the perfect fifth) is softly sung by the cuckoo (kokilā). Dhaivatā (the natural sixth) is croaked by the frog in the season of rains. At all times, O

* In terms of the modern one, the ancient natural scale would contain an E flat and a B flat (Ga komalā and Ni komalā).

Goddess! Niṣhādā (the minor seventh) is trumpeted by the elephant." (Kohalā quoted in *Bṛihaddeshī*, comm. on 63.)³¹

A similar list is given in the *Nārādā Samhitā* (2, 55-56) and a slightly different one in the *Maṇḍukī Śhikṣhā* (I, 9) and in the *Nārādīyā Śhikṣhā* (I, V. 4-5) also reproduced in the *Śhiva tatva Ratnākarā*. (VI, 7, 33-35).

The peacock's octave starts from the upper note. Kālidāśa says:

"Both listened to the lovely cry of crested peacocks raising their heads at the sound of the axle of the chariot. In this cry resound two kinds of Śhadjā svarā." (*Raghuvamśhā*, I, 39.)³²

We observe that the goat bleats the minor third (Do Miḃ, Sa-Ga komalā) that the angry elephant gives a prolonged Si flat (Ni komalā) interspersed with repeated lower Do-s (Sa). This shows clearly what was the ancient natural scale.

Readers in India will be familiar with the fifth of the cuckoo.

Some modern writers have suggested that these animal cries have an absolute pitch. So far as I am aware this is not a fact, but the intervals themselves do seem to be invariable.

The Intercalary Notes, Kākalī Ni and Antarā Ga

To the seven main notes were added, in ancient music, two accessory notes dividing the major tones Ni, Sa (modern Ni k., Sa; Bḃ, C) and Ga, Ma (modern Ga k., Ma; Eḃ, F) into two half-tones. These two intercalary (sādhāraṇā) notes were called Kākalī Ni (the pleasing Si) and Antarā Ga (intermediary Mi).

"When two śhrutis (half a tone) from Sa (Do) pass into Ni (Si), this is (called) Kākalī (Siḃ, Ni śhuddhā). The same from Ma (Fa) into Ga (Mi) is Antarā (Miḃ, Ga śhuddhā)." (Quoted in Simh. comm. on *San̄g. Ratn.* I, 3, 40, and in *Śh. tat. Ratn.* VI, 7, 51.)³³

"The note called Kākalī is obtained by raising Ni (modern Ni k., Siḃ) by two śhrutis. The note called Antarā is obtained from Ga (modern Ga k. Miḃ) in the same way. They are not properly considered notes (svarās) because they cannot be taken as tonic (amśhā). So Niṣhādā (Ni k., Miḃ) and Gāndhārā (Ga k., Miḃ) are given prominence over them." (*Datt.* 16-17, also quoted by Simh. comm. on *San̄g. Ratn.* I, 3, 56.)³⁴

The Śhrutis (Intervals)

The names and classification of the intervals, the śhrutis, as given in the ancient and the medieval books, present many problems of interpretation. For this there are the following reasons: (1) at different periods, different notes were taken as the tonic; (2) the more ancient treatises envisaged a descending scale, more recent ones an ascending scale; (3) even the scale considered natural was different at different periods. These difficulties will not surprise us if we remember that not only hundreds but thousands of years may have elapsed between the composition of different treatises.

As we have already seen, a note and its name, depend upon its relation with a fixed sound, the tonic; it can be a fourth, a fifth (a Ma (Fa), a Pa (Sol) etc.) only by relation with a basic sound (in modern Indian music, always the Sa—supposed here to correspond with C). Without such a relation an isolated sound cannot properly be called a “note”, a svarā.

Notes, therefore, depend upon intervals. From the dual point of view of physical relation and intelligible expression, the intervals from which the notes are produced are called “śhrutis”, that is “audible”,* since it is only through hearing that the idea conveyed by the intervals can be grasped.

The number of possible intervals in relation to a given note is obviously limitless. Yet, the number of intervals used in music is comparatively small. This is due to the phenomenon of “consonance”. When the number of vibrations of two or more sounds are related with one another in simple ratios, the sounds seem to merge into one another. This is called consonance and is due to the fact that in such a case many of the “harmonics”, which form the upper structure of all sounds, coincide. Consonance gives our sense of hearing a pleasing and restful sensation.

Intervals, however, do not merely produce pleasing or unpleasant sensations. Like words, they also convey to the mind of the hearer distinct and definite expressions.

The Indian theory of music considers that a normal ear can easily perceive sixty-six distinct intervals within the compass

* “It is grasped by the ear, hence it is called ‘śhruti’ (audible).”³⁵ “‘Śhru’, which means ‘hearing’, is the root of the word. To this is added the (feminine) suffix ‘ktin’ (denoting an ‘abstract noun’). In this way the term ‘śhruti’ is derived by experts in words [to represent] the ‘means of expression’.” (*Bṛihaddeśhi*, comm. on 1, 26.)³⁶

of an octave—intervals, that is, which, when played one after another, appear distinctly as separate steps (we shall see later what these intervals are). We find, however, that among these intervals twenty-two are chiefly used in music. These twenty-two are those which represent the simpler ratios with the tonic and which convey to our mind the most distinct and pleasing expressions. In practice, therefore, the śhrutis are said to number twenty-two, though, theoretically, sixty-six are possible. We may say, then, that within one octave we can accurately distinguish twenty-two distinct expressions and sixty-six distinct pitches; beyond this we can naturally conceive of limitless relations of sounds, but we shall never be able to recognize them easily by ear, so they cannot be utilized in music.

Three classes of intervals were already mentioned by Kohalā:

“Some experts in the knowledge of intervals say that they number twenty-two. Others speak of sixty-six and some consider them numberless.” (Kohalā, quoted in *Bṛihaddeśhī*, comm. on 1, 28, and in both Simhabhūpālā’s and Kallināthā’s comm. on *Saṅg. Ratn.* 1, 3, 8–9 and 10–16.)³⁷

The complete scale of the śhrutis is not a practical musical scale which can be directly used in a melodic form. It is simply the assemblage of the different intervals used in different modes, and the standard, therefore, by which they can be compared and studied.

It is impossible to sing the complete scale of the śhrutis accurately in succession (as some singers pretend to do), but they can all be sung with perfect accuracy when they are embodied in expressive scales. Hence Pārśhvadevā says:.

“The twenty-two sounds cannot be produced (in succession) by the throat. They should therefore be demonstrated on a stringed instrument.” (Attributed to the *Saṅgītā Samayāsārā*, though it is not to be found in the printed edition.)³⁸

The Measure of the Śhrutis

According to the explanations given by Bharatā in the *Nāṭyā Śhāstrā* and by Maṭaṅgā in his *Bṛihaddeśhī*, the interval, or śhruti, used as the basis of the division of the octave is the comma diesis $81/80$, defined as the difference between Pa [modern Dha (A)] considered as the upper fourth (ratio $4/3$)

from Ri [modern Ga (E)] and Pa as the lower fourth (4/3) from Sa [modern Ri (D)]. This comma is called the "measuring" or "standard" interval.

"The interval produced by the raising or lowering of Pañchamā (modern A, Dha), [which can also be envisaged as a] softening or [a difference in string-] length, is called the "standard interval" (pramāṇā śhruti)." (*Nāṭ. Śh.* 28, 22; and *Bṛihaddeśhī*, comm. on 1, 28.)³⁹

It is in fact true that if to the perfect fourth Ri Pa (D G, ancient Sa Ma) of 9 śhrutis we add the minor tone Pa Dha (G A, ancient Ma Pa) of 3 śhrutis, and then the perfect fourth Dha Ri (A D, ancient Pa Sa) of 9 śhrutis, we find the octave from Ri to Ri (D to D) too short:

$$9 \text{ śhrutis} + 3 + 9 = 21; \text{ (i.e. } \frac{4}{3} \times \frac{10}{9} \times \frac{4}{3} = \frac{160}{81} \text{).}$$

The difference between this and the real octave (2/1) is one śhruti or comma (81/80). Thus: $21 + 1 = 22$ or $\frac{160}{81} \times \frac{81}{80} = \frac{2}{1}$

To obtain a perfect octave, then, we must either make the fourth Dha Ri (A D) too large (27/20), or raise the harmonic Dha (A = 5/3) into Dha+ (A+ = 27/16),* changing the minor tone Pa Dha (G A = 10/9) into a major tone Pa Dha+ (G A+ = 9/8). But, in this latter case, the fourth Ga Dha+ (E A+) will become too large. To correct it, we may raise the Ga (E) into Ga+ (E+); but this will destroy its consonance with Ni (B).

In this way we always have to choose between one perfect fourth or the other, the difference involved being in every case the very interval of one comma (81/80) or 5 savarts† which first appears at Dha (A) (ancient Pa).

This "comma of Didymus", as it is also called, was considered by the Greeks, the Arabs and the Hindus as the logical

* See notation-signs, pp. 49-54.

† To represent the proportional ratios of intervals by numbers which can be added together, the easiest method is to take their logarithms. In the most usual system, the octave (2/1) is represented by the log. of 2, i.e. 0.30103, which, multiplied by 1,000 for convenience, gives the division of the octave into 301.03 intervals, or, in practice, 301 intervals which are equal, can be added or subtracted, and are usually called SAVARTS, from the name of the physicist Savart (1791-1841) who advocated this system.

The division of the tempered half-tone into one hundred "cents", sometimes used nowadays, does not allow direct use of logarithm-tables and is besides empirical and musically inaccurate.

unit for any practical division of the scale. Many modern acousticians agree with this view.

The comma ($81/80$) has this peculiarity, that the differences between important simple intervals can almost always be expressed in terms of it. For example, the difference between the major and minor tone $9/8$ and $10/9$ (Sa Ri and Ri Ga) is $9/8 \times 9/10 = 81/80$; the difference between the major half-tone ($16/15$) and the limma ($256/243$) is $\frac{16}{15} \times \frac{243}{256} = \frac{81}{80}$; the difference between the two minor thirds (C E \flat +* (Sa Ga k +)† = $\frac{6}{5}$ and C E \flat_n (Sa Ga k $_n$) = $\frac{32}{27}$) is $\frac{6}{5} \times \frac{27}{32} = \frac{81}{80}$; the difference between the harmonic third C E (Sa Ga) = $5/4$ and the Pythagorean third C E+ (Sa Ga +) = $81/64$ is $\frac{81}{64} \times \frac{4}{5} = \frac{81}{80}$, and so on.

This explains why a scale formed by adding to the twelve notes of the basic scale twelve other notes each raised by one comma, and twelve more each lowered by one comma, will give us practically all the intervals used in music.

The complete division of the octave is, however, attained by adding or subtracting either one or two commas from each of the twelve notes of the basic chromatic scale.‡ This gives us a series of 53 intervals, which cannot all be used in modal scales though they may come into use through modulations (changes of tonic) or in certain forms of polyphony. If we further divide the disjunction which appears at each half-tone of this scale so as to form quarter tones, we obtain the division of the octave (Sa to upper Sa) into 65 intervals—that is, counting the note that forms the octave itself, the scale of sixty-six intervals or śhrutis spoken of by Kohalā.

It should be noted that this scale makes use only of two kinds of intervals—commas of 5 savarts and disjunctions of 8 savarts. This is, in fact, besides the Pythagorean division into seven notes, the only possible complete division of the octave which uses only two sorts of intervals and which respects the fundamental consonances (fourth, fifth, etc.).

* See the tuning-signs, pp. 49–54.

† k. means "komalā" (flat) and t. "tivrā" (sharp).

‡ See p. 50.

All other divisions of the octave are either irregular or, as is the case with all tempered scales, never give perfect consonances.

*The Notation of the Śhrutis**

To proceed further with the theory of the śhrutis we require an accurate and simple way of writing down exact intervals. The following method of classification has been adopted here as the most simple and convenient.

In order to write the sixty-six intervals of the complete scale, we shall use conventional signs placed beside the notes within the frame of the harmonic form of the chromatic scale,† which is the scale of modal music and which allows only one sort of accidental (either flat or sharp) for each note. This applies to both the European staff and the Indian syllabic notations. Thus, the sign — — after the note means that it is lowered by two commas; the sign — means that the note is lowered by one comma; the sign + means that the note is raised by one comma, the sign + + that the note is raised by two commas. The sign *n* (natural) indicates the more usual note, neither raised nor lowered.

In the following tables we shall leave aside the quarter-tones that divide the disjunctions into two approximately equal parts, since they are never in practice used in Indian music.

* For transcription of the śhrutis in the European staff and Indian syllabic notations, see below: Notation of the intervals, p. 80.

† See below, the section on "the Scale", p. 72.

NORTHERN INDIAN MUSIC

*The Sixty-six Śhrutis**

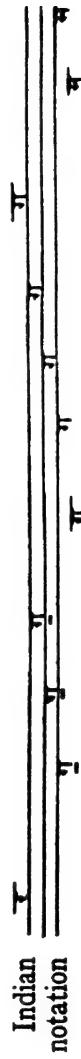
Śhrutis	Sa	Sa+	Sa++	1/4	Re--	Re-	Re _N	Rek+	3/4	Re--	Re-	Re	Re+	Re++
	C	C+	C++		Db--	Db-	Db _N	Db+		D--	D-	D	D+	D++
	1	2	3	4	5	6	7	8		10	11	12	13	14
Intervals	comma	comma	disjunc- tion	comma	comma	comma	comma	comma	disjunc- tion	comma	comma	comma	comma	comma
Tempered scale	20	20	32	20	20	20	20	20	32	20	20	20	20	20
Intervals with C(Sa)	1	81	128	(31)	25	256	16	27	135	800	10	9	256	(15)
	1	80	125	(30)	24	243	15	25	124	729	9	8	225	(13)



* For explanation of the signs used in the Indian and Western staff notations, see below: "Notation of the intervals", p. 80.

THE SCALE

Shrutis	Re++														Ma--	
	D++ 1/4														F--	
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	1/4	F--
Intervals		disjunc- tion	comma	comma	disjunc- tion	comma	comma	comma	comma	comma	disjunc- tion	comma	disjunc- tion	comma		
Tempered scale																
Intervals with C(Sa)	(15)	93	75	32	6	75	(243)	100	5	81	32	31	125	320		
	(13)	80	64	27	5	62	(200)	81	4	64	25	24	96	243		



NORTHERN INDIAN MUSIC

Shrutis	Ma	Ma+	Ma++	MaT--	MaT-	MaT _M	MaT ₊	Pa---	Pa-	Pa _M	Pa+	Pa++
F-	F	F+	F++	1/4	F#-	F#M	F#+	3/4	G-	G	G+	G++

	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
Intervals	comma	comma	comma	comma	disjunc-	comma	comma	comma	comma	disjunc-	comma	comma	comma	comma	comma
Tempered scale	20	20	20	20	32	20	20	20	20	32	20	20	20	20	20
Intervals with C(Sa)	320 243	4 3	27 20	512 375	62 45	25 18	45 32	64 45	36 25	90 62	375 256	40 27	3 2	243 160	192 125

Indian notation

Staff notation

THE SCALE

Śrūtis Pa++ Dhak. Dhak₊ Dhak+ Dha-- Dha- Dha Dha+ Dha++ Nik-- Nik
 G++ 1/4 Ab- Ab_N Ab+ 3/4 A-- A- A A+ A++ 1/4 Bb-- Bb-

41	42	43	44	45	46	47	48	49	50	51	52	53	54
disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32	disjunc- tion 32
comma	comma	comma	comma	comma	comma	comma	comma	comma	comma	comma	comma	comma	comma
20	20	20	20	20	20	20	20	20	20	20	20	20	20
192 125	31 20	25 16	128 81	8 5	50 31	81 50	400 243	5 3	27 16	128 75	31 18	125 72	225 120

Indian notation



Staff notation



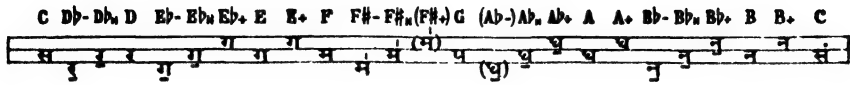
NORTHERN INDIAN MUSIC

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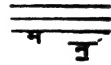
NOTE. The comma is equal to five savarts (or 20 cents); the disjunction equals eight savarts (32 cents); the tempered half-tone twenty-five savarts (100 cents).

THE SCALE

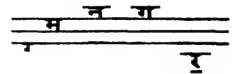
Of these theoretical intervals many, in practice, are very seldom used. The twenty-two (or twenty-four) most prominent intervals, which correspond to obviously distinct expressions and which are used in the teaching of modal music, are usually considered to be the following:



On no grounds can these twenty-two divisions be considered equal. They refer only to twenty-two prominent intervals chosen out of the possible fifty-three (or sixty-six). In modal music a few other intervals are used, though seldom. They are the rare F— and B♭— —



and the still more rarely used D—, F+, B++ , E++ , D♭— —



The remaining divisions, necessary only when the tonic is changed, are not considered in modal practice.

As we have already explained, if we add or subtract one comma to or from each of the twelve notes of the fundamental Pythagorean chromatic scale* we get a scale of thirty-six notes which contains practically all the intervals that are used in any form of music.

In this scale each of the twelve notes thus has three positions—low, middle and high. This mode of division of the scale seems to have been used by the celebrated Tumburu† who expresses the strident character of all the raised notes and the mellowness of the lowered ones by connecting them with the

* The Pythagorean chromatic scale has only major tones and limmas. Its third, sixth and seventh are therefore higher by one comma than the same notes of the harmonic scale. The Pythagorean scale is written in our notation:

C	D	E+	F	G	A+	B+	C
Sa	Ri	Ga+	Ma	Pa	Dha+	Ni+	Sa.

The intermediary notes are:

D♭ _n	E♭ _n	F♯ _n	A♭ _n	B♭ _n
Ri k _n	Ga k _n	Ma t _n	Dha k _n	Ni k _n

† A celestial musician, considered the originator of one of the chief ancient systems of music. He wrote a treatise now lost.

four humours of the body whose relative predominance is said to bring similar tendencies. He says:

"A sound that is high is harsh (piercing). The wise know it to be born from wind.

"A low sound, deep and mellow, should be known as born from bile.

"The attractive (perfect) sound is born from lymph. It is sweet and tender.

"That which has the qualities of all three (the sound with vibrato) is known to be born from semen." (Attributed to Tumburu by Kallināthā, comm. on *Saṅg. Ratn.* 1, 3, 10-16; and to Chaturā in *Bṛihaddeśhī* comm. on 27.)⁴⁰

The Expression of the Śhrutis

As we have already seen, the division of the octave into sixty-six intervals is an acoustic division. Although we can clearly perceive the differences in pitch of different intervals and rapidly train our ear to recognize them, only a certain number will correspond with such expressions as are generally used in music. These expressions of the intervals have been carefully classified by ancient writers. Each śhruti was given a name depicting its character. In the system of Pārśhvadevā, these names were even different for each octave. These expressions were further classified into five main groups or *Jātis* called "moderate, keen, large, tender, and compassionate". We shall see later what these *jātis* are.

"Dīptā (keen), Āyatā (large), Karuṇā (compassionate), Mṛidu (tender), Madhyā (moderate), these are the five kinds (*Jātis*) of śhrutis that are found in the notes." (*Saṅg. Ratn.* 1, 3, 27-28.)⁴¹

Because of the confusion that has resulted from changes in scale and in tonic the exact interpretation of the ancient śhrutis presents a number of problems which we shall not attempt to discuss here.

The only safe way to interpret the ancient śhrutis is to start from the actual expression of the intervals as they are found to exist in present-day musical practice. The notation of these expressions given in the following list has been worked out by careful measuring of the intervals used by musicians playing different *rāgās* and by noting the expression each particular

note conveyed to the musician and to his audience. It was found that the same intervals in the most different rāgās always, in themselves, produced the same kind of expression. The scale we give here is only the result of such experiments and may therefore be subject to improvement.

In the following table we also compare the śhrutis as they are given by Śhārṅadevā with the experimental ones. A few slight differences remain to be clarified.

There is some difficulty in ascertaining which of the śhrutis of Śhārṅadevā really was the tonic. This has led to very divergent interpretations. The three main ones start the scale from the śhrutis Chhandovatī, Kṣhobhiṇī or even Ramyā—corresponding with Dha (A), which is said to have been the ancient tonic of Nārada. The *Svarā melā Kalānidhi* (1549 A.D.) takes Chhandovatī as Sa (Tonic) but considers that “Prasūnā”, Nārada’s first śhruti, corresponds with Kṣhobhiṇī. On the other hand, Govindā in his *Saṅgītā Śhāstrā Saṅkṣhepā* (c. eighteenth century) places the tonic Sa on Kṣhobhiṇī.

The śhrutis are given by Śhārṅadevā as follows:

“Tivrā, Kumudvatī, Mandā, Chhandovatī come within Śhaḍjā;

Dayāvatī, Rañjanī and Raktikā dwell in Rīṣabhā,

Raudrī and Krodhā in Gāndhārā,

while the śhrutis Vajrikā, Prasāriṇī, Prīti and Mārjanī have their place in Madhyamā.

Kṣhitih, Raktā, Sandīpanī and Ālāpinī are in Pañchamā;

Madantī, Rohiṇī, Ramyā shelter in Dhaivatā;

both Ugrā and Kṣhobhiṇī rest in Niṣhādā.” (*Saṅg. Ratn.*

I, 3, 35–39).⁴²

I formerly followed the often admitted interpretation that starts the scale from Kṣhobhiṇī, but closer study of the expressions given by Śhārṅadevā seems to show beyond doubt that his scale started from Chhandovatī, as seen in the following tables.

THE SCALE OF THE ŚRUTIS

Note	Actual expression	Ratio from C	Śhārngadevā Śhrutis (Type of expression— Jātis)	
			(Name of śhruti)	(Type of expression— Jātis)
Sa (C)	(base)	1/1	Sa 4 Chhandovati (measuring)	Madhyā (moderate)
Sa+ (C+)	—	81/80		
Ri k— (D♭—)	—) sad, pathetic.	25/24	5 Dayāvati (compassionate)	Karuṇā (compassion)
Ri k— (D♭—)	tender, at peace.	256/243	6 Rañjani (charming)	Madhyā (moderate)
Ri k _n (D♭ _n)	loving, calm.	16/15		
Ri k+ (D♭+)	enterprising.	27/25		
Ri— (D—)	anxious, weak.	10/9		
Ri _n (D _n)	strong, confident.	9/8	Ri 7 Ratikā (sensual)	Mṛduḥ (tender)
Ri+ (D+)	fierce.	256/225	8 Raudri (fierce)	Diptā (keen)
Ga k— (E♭—)	sad.	75/64		
Ga k _n (E♭ _n)	loving.	32/27	Ga 9 Krodhā (passionate)	Āyatā (large)
Ga k+ (E♭+)	passionate.	6/5	10 Vajrikā (thundering)	Diptā (keen)
Ga _n (E _n)	calm, pleasing.	5/4	(Antarā Ga) 11 Prasāriṇī (pervasive)	Āyatā (large)

THE SCALE OF THE ŚHRUTIS (contd.)

Note	Actual expression	Ratio from C	Śhārngadevā Śhrutis (type of expression— Jātis)	
			(Name of śhruti)	(type of expression— Jātis)
Ga+ (E+) Ga++ (E++)	awake, lively. hard, indifferent.	81/64 32/25	12 Pṛītiḥ (love)	Mṛīduḥ (tender)
Ma- (F-) Ma _n (F _n)	doubt. moonlight, peace.	320/243 4/3	Ma 13 Mārjaṇī (purifying)	Madhyā (moderate)
Ma+ (F+)	intense.	27/20		
Ma t- - (F _# - -) Ma t- (F _# -) Ma t _n (F _{#n}) Ma t+ (F _# +)	intense grief. uncertain, doubtful. intense, active. acute, interrogative.	25/18 } 45/32 } 64/45 36/25	14 Kṣhītiḥ (loss) 15 Raktā (red) 16 Sandipani (inflaming)	Mṛīduḥ (tender) Madhyā (moderate) Āyatā (large)
(Pa-) (G-) Pa _n (G _n)	inexpressive, self-contradictory. sunlight, joyful.	40/27 3/2	Pa 17 Ālāpini (conversing)	Karuṇā (compassion)
(Pa+) (G+)	confused, self-contradictory.	243/160		
Dha k- (Ab-)	deep sorrow.	25/16	18 Madanti (maddening)	Karuṇā (compassion)

THE SCALE OF THE ŚHRUTIS (contd.)

<i>Note</i>	<i>Actual expression</i>	<i>Ratio from C</i>	<i>(Name of śhruti)</i>	<i>Śārngadevā Śhrutis</i> (<i>type of expression—</i> <i>Jāṁs</i>)
Dha k _n (A _b n)	tender.	128/81	19 Rohiṇī	Āyatā (large)
Dha k+ (A _b +))	loving, enterprising.	8/5	(adolescent)	
<i>Dha— (A—)</i>	<i>uncertainty.</i>	400/243		
<i>Dhan (A_n)</i>	<i>soft, calm.</i>	5/3		
Dha+ (A+)	restless, playful.	27/16	Dha 20 Ramyā (restful)	Madhyā (moderate)
(Dha++) (A++)	hard, active.	128/75	21 Ugrā (fearful)	Diptā (keen)
Ni k— (B _b —)	helpless, subdued.	225/128		
<i>Ni k_n (B_bn)</i>	<i>beauty, love.</i>	16/9	Ni 22 Kṣobhinī (excited)	Madhyā (moderate)
Ni k+ (B _b +))	desire, anxiety.	9/5	1 Tivrā (sharp)	Diptā (keen)
(Ni— —) (B— —)	(<i>doubt</i>).	729/400		
(Ni— —) (B— —)	<i>anguish, depression.</i>	50/27		
<i>Ni_n (B_n)</i>	<i>soft, voluptuous.</i>	15/8	(Kākali Ni) 2 Kumudvatī (lotus-like)	Āyatā (large)
Ni+ (B+)	strong, sensuous.	243/128	3 Mandā (low)	Mṛduḥ (tender)
Ni++ (B++)	selfish, eager.	48/25		
Sa— (C—)	—	160/81		
<i>Sa (C)</i>	(<i>base</i>)	1/1	Sa 4 Chhandovati (measuring)	Madhyā (moderate)

The Theory of the Classes of Intervals (Śhruti-jātis)

As we have explained in another work,* the scale of the śhrutis is composed of several series of fifths related by harmonic thirds. Starting from C(Sa), we build five successive ascending fifths and five successive descending fifths (we shall see later why there can be only five). This gives us the series of intervals generally known as Pythagorean.

The five ascending fifths are: G (Pa), D (Ri), A+ (Dha+), E+ (Ga+), B+ (Ni+).

The five descending fifths are: F (Ma), B_b (Ni k_n), E_b (Ga k_n), A_b (Dha k_n), D_b— (Ri k—).

If now, starting again from C, we descend by an harmonic minor third (6/5), this gives us the A_n (Dha_n) which forms a sixth (5/3) with the lower C, and which is lower by one comma (81/80) than the Pythagorean sixth A+ (Dha+) = 27/16 which we obtained before.

If we build up ascending and descending fifths starting from this harmonic A_n (Dha_n), they will all naturally fall one comma below those of the basic series. This new series gives us: E (Ga), B (Ni), F#— (Ma t—), D_b— (Ri k—), etc.

If again we base an harmonic minor third on A_n (Dha_n), we obtain F#— — (Ma t— —) = 25/18, basis of a series of fifths two commas below those of the basic series, thus: D_b— — (Ri k— —), A_b— (Dha k—), E_b— (Ga k—), B_b— (Ni k—).

And if, starting again from C (Sa), we ascend by an harmonic minor third, we obtain the high E_b+ (Ga k+) 6/5, the basis of a series of fifths all one comma higher than those of the basic series, thus: A_b+ (Dha k+), D_bn (Ri k_n), F#_n (Ma t_n), B+ (Ni+).

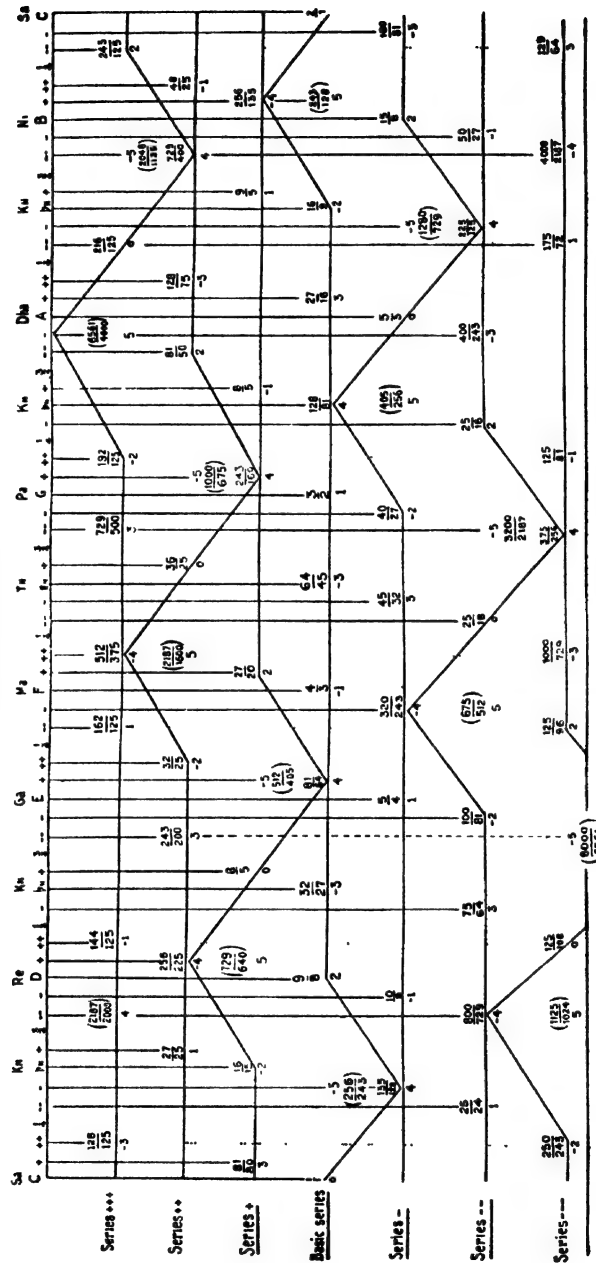
Similarly, an ascending harmonic minor third from E_b+ (Ga k+) gives F#+ (Ma t+) 36/25, the base of a series of fifths two commas higher than those of the basic series, thus: B++ (Ni++), E++ (Ga++), A++ (Dha++), D+ (Ri+).

We shall see more clearly below that each of these series is based upon a certain *type* of ratio, and that the notes of each series correspond with a certain type of emotion. There is, then, a direct relation between intervals, determined by strictly physical laws, and the emotions they arouse or express. This fact is the very ground of music. Once we know

* *Introduction to the Study of Musical Scales*, pp. 232-235.

NORTHERN INDIAN MUSIC

THE SERIES OF FIFTHS AND THE 66 ŚRĀUTIS



THE SCALE

the type of ratio that corresponds with certain emotion, we can tell at once what emotion a given interval must express by merely looking at the ratio with which it corresponds: we do not need to hear it.

Starting from Sa (C) $\frac{1}{1}$ which is strictly neutral, the ascending fifths are all of the form $3/2$, i.e. ratios formed with 3 and its multiples divided by multiples of 2. Thus: G (Pa) = $3/2$, D (Ri) = $9/8 = 3^2/2^3$, A+ (Dha+) = $27/16 = 3^3/2^4$, E+ (Ga+) = $81/64 = 3^4/2^6$, B+ (Ni+) = $243/128 = 3^5/2^7$.

These intervals are said to represent the "active principle": they all express sunshine, strength and joy.

If, in the same series, we take the descending fifths from Sa (C), these are all of the form $2/3$. Thus F (Ma) = $4/3 = 2^2/3$, B \flat _n (Ni k_n) = $16/9 = 2^4/3^2$, E \flat _n (Ga k_n) = $32/27 = 2^5/3^3$, A \flat _n (Dha k_n) = $128/81 = 2^7/3^4$, D \flat - (Ri k-) = $256/243 = 2^8/3^5$.

These intervals represent the "passive principle": they all express moonlight, beauty, peace.

In this basic series the expressions remain of a general character: they are said to be of the cosmic order. Their ratios never use a prime number higher than three.

In the next series a new element appears, the prime number 5. And we shall discover that whenever 5 appears as a constituent of the numerator, the interval whose ratio is so expressed conveys tenderness (that is, passive reaction to the outer world). And whenever it appears as a constituent of the denominator, the interval whose ratio is so expressed conveys passion (active reaction to the outer world).

The basic interval of the series — (minus) is A (Dha) $5/3$, which expresses sensitiveness, emotion. The ascending fifths will be E_n (Ga_n) $5/4 = 5/2^2$, B_n (Ni_n) $15/8 = 5 \times 3/2^3$, F#- (Ma t-) $45/32 = 5 \times 3^2/2^5$, D \flat - (Ri k-) $135/128 = 5 \times 3^3/2^7$. These will all show the same character, though the growing influence of $3/2$ will bring in its own element of activity.

The descending fifths [D- (Ri-) $10/9 = 5 \times 2/3^2$, G- (Pa-) $40/27 = 5 \times 2^3/3^3$, C- (Sa-) $160/81 = 5 \times 2^5/3^4$, F- (Ma-) $320/243 = 5 \times 2^6/3^5$] enhance the already receptive, sensitive character of the series —; in fact the passive character of the descending fifth, when added to that of the number 5 in the numerator, gives intervals so exaggeratedly

passive and characterless that they are rarely used in music.

The basic interval of the series + (plus) is $E\flat + (Ga\ k+)$ $6/5 = 2 \times 3/5$ which expresses passion, desire. The ascending fifths built upon it add their activity to the active character produced by the number 5 in the denominator and thus create exaggeratedly acute intervals which, except for the first one, where the element 2 does not appear, are rarely used in music

$[B\flat + (Ni\ k+) \ 9/5 = 3^2/5, F + (Ma +) \ 27/20 = 3^3/5 \times 2^2, C + (Sa +) \ 81/80 = 3^4/5 \times 2^4, G + (Pa +) \ 243/160 = 3^5/5 \times 2^5]$.

The descending series, on the other hand, combining passion ($\left(\frac{n}{5}\right)$) and beauty (descending 5ths), is lively and charming. Its intervals are $A\flat + (Dha\ k+) \ 8/5 = 2^3/5, D\flat_n (Ri\ k_n) \ 16/15 = 2^4/5 \times 3, F\sharp_n (Ma\ t_n) \ 64/45 = 2^6/5 \times 3^2, B + (Ni +) \ 256/135 = 2^8/5 \times 3^3$.

We see that the fifth ascending fifth of the basic series and the fourth descending fifth of the series + give two intervals almost identical: $B + (Ni +) \ 243/128$ and $B + (Ni +) \ 256/125$. The first is of 278.14 savarts, the second of 277.91. The difference is 0.23 of a savart, that is less than 1/20th of a comma or 1/200th of a tone—a very small quantity indeed. Any further fifths in these two series will therefore be practically identical. The same applies to the fifth descending fifth of the basic series, $D\flat - (Ri\ k-) \ 256/243$, and the fourth ascending fifth of the series —, $D\flat - (Ri\ k-) \ 135/128$. The same happens, in fact, with every series, so that the number of possible distinct intervals in each series can never be higher than five.

If we now proceed with the series two commas above and two commas below the basic series, we have the series ++ characterized by $\frac{n}{25}$, i.e. 5^2 in the denominator. This expresses harshness, brutality, insensitiveness; while the series — —, characterized by $\frac{25}{n}$, or 5^2 in the numerator expresses intense depression or sadness.

The intervals of the series ++ are not as a rule employed because the kind of sentiments they express are not those we

THE CLASSES OF ŚRUTIS (ŚRUTY-JĀTIS)

BASIC SERIES (COSMIC)

O = Sa; † centre, Earth, etc (yellow)

Descending fiftha (Passive †)

-1	F (Ma)	$\frac{4}{5} = 2\frac{2}{5}$	Moonlight, peace, passivity (white)
-2	Bh. (NiMa)	$\frac{16}{9} = 2\frac{2}{3}$	beauty, loveliness
-3	Ek. (GaKa)	$\frac{32}{27} = 2\frac{2}{3}$	tender, loving, expectant
-4	Ab. (DhaKa)	$\frac{28}{81} = 2\frac{2}{3}$	submissive, passive, expectant
-5	Dh. (RaKa)	$\frac{256}{243} = 2\frac{2}{3}$	tenderness, charm, devotion

Ascending fiftha (active †)

1	G (Pa)	$\frac{3}{2}$	Sunshine, joy, activity (red)
2	D (Re)	$\frac{9}{8} = 3\frac{1}{2}$	strength, virility
3	A (Dha†)	$\frac{27}{16} = 3\frac{1}{2}$	confident, joyful, lively
4	E (Ga†)	$\frac{81}{64} = 3\frac{1}{2}$	independent, active, contented
5	B. (Ni†)	$\frac{243}{128} = 3\frac{1}{2}$	boldness, desire, pleasure

SERIES - (passive, emotion, enjoyment †)

O = A (Dha) † enjoyment, satisfaction

Descending fiftha

-1	D (Ma)	$\frac{104}{81} = \frac{812}{729}$	Weak, anxious
-2	G. (Pa†)	$\frac{49}{27} = \frac{49}{27}$	soft, voluptuous
-3	C. (Sa†)	$\frac{160}{243} = \frac{160}{243}$	attractive, ambiguous
-4	F. (Ma†)	$\frac{320}{243} = \frac{320}{243}$	tender, charming, devoted
-5	Bh. (Ni†)	$\frac{1280}{2187} = \frac{1280}{2187}$	

Ascending fiftha

1	E. (Ga)	$\frac{5}{4} = 5\frac{1}{2}$	soft, pleasing
2	B. (Ni)	$\frac{15}{8} = 3\frac{3}{4}$	soft, voluptuous
3	Fa. (NiMa)	$\frac{45}{32} = 3\frac{3}{4}$	attractive, ambiguous
4	Dh. (Ra†)	$\frac{135}{256} = 3\frac{3}{4}$	tender, charming, devoted
5	Ab. (Dha†)	$\frac{405}{256} = 3\frac{3}{4}$	

SERIES - (Depression, sadness †)

O = F † - (Ma †) - $\frac{75}{16} = 5\frac{1}{2}$ distressful

Descending fiftha

-1	B. (Ni)	$\frac{59}{27} = \frac{59}{27}$	
-2	E. (Ga†)	$\frac{100}{81} = \frac{100}{81}$	
-3	A. (Dha†)	$\frac{270}{243} = \frac{270}{243}$	
-4	D. (Ra†)	$\frac{800}{2187} = \frac{800}{2187}$	
-5	G. (Pa†)	$\frac{1280}{2187} = \frac{1280}{2187}$	

Ascending fiftha

1	Dh. (Ra)	$\frac{25}{16} = 3\frac{1}{4}$	intense sadness
2	Ab. (Dha)	$\frac{75}{32} = 3\frac{1}{4}$	despair, intense sadness
3	Ek. (Ga)	$\frac{25}{8} = 3\frac{1}{4}$	sadness, melancholy
4	Bh. (Ni†)	$\frac{125}{512} = 3\frac{1}{4}$	helpless, subdued
5	F. (Ma†)	$\frac{625}{8172} = 3\frac{1}{4}$	death, melancholy

SERIES + (active emotion, passion †)

O = Eb. (GaKa) $\frac{16}{5} = 3\frac{1}{5}$ passion, desire

Descending fiftha

-1	Ab. (DhaKa)	$\frac{8}{5} = 3\frac{1}{5}$	loving, passionate
-2	Bh. (NiKa)	$\frac{16}{15} = 3\frac{1}{5}$	loving, confident
-3	Fa. (NiMa)	$\frac{25}{63} = 3\frac{1}{5}$	active, promising, intense
-4	B. (Ni†)	$\frac{25}{15} = 3\frac{1}{5}$	boldness, desire, pleasure
-5	E. (Ga†)	$\frac{32}{15} = 3\frac{1}{5}$	

Ascending fiftha

1	B. (NiKa)	$\frac{9}{5} = 3\frac{1}{5}$	passionate, intense, desire
2	F. (Ma†)	$\frac{27}{20} = 3\frac{1}{5}$	intense
3	C. (Sa†)	$\frac{5}{6} = 3\frac{1}{5}$	
4	G. (Pa†)	$\frac{253}{160} = 3\frac{1}{5}$	
5	D. (Ra†)	$\frac{729}{640} = 3\frac{1}{5}$	

SERIES ++ (Harshness, insensibility †)

O = F † - (Ma †) - $\frac{75}{16} = 5\frac{1}{2}$ harsh, indifferent

Descending fiftha

-1	B. (NiKa)	$\frac{48}{25} = 3\frac{1}{5}$	selfish, hard
-2	E. (Ga†)	$\frac{24}{5} = 3\frac{1}{5}$	hard, indifferent
-3	Ab. (DhaKa)	$\frac{192}{315} = 3\frac{1}{5}$	unconscious, insentient
-4	D. (Ra†)	$\frac{384}{315} = 3\frac{1}{5}$	insentient
-5	G. (Pa†)	$\frac{1000}{675} = 3\frac{1}{5}$	

Ascending fiftha

1	Dh. (RaKa)	$\frac{27}{5} = 3\frac{1}{5}$	harsh, enterprising
2	A. (Dha†)	$\frac{81}{20} = 3\frac{1}{5}$	
3	E. (Ga†)	$\frac{200}{512} = 3\frac{1}{5}$	
4	B. (Ni†)	$\frac{243}{400} = 3\frac{1}{5}$	
5	F. (Ma†)	$\frac{2187}{1600} = 3\frac{1}{5}$	

usually ask from music. In any case, as it was in the series +, only the descending fifths convey clear meaning, for the ascending fifths create confusion by superimposing their active character upon the already extreme activity of the series. This series thus gives us $F\sharp + (Ma\ t +) 36/25 = 3^2 \times 2^2/5^2$, $B + + (Ni + +) 48/25 = 3 \times 2^4/5^2$, $E + + (Ga + +) 32/25 = 2^5/5^2$, $A + + (Dha + +) 128/75 = 2^7/5^2 \times 3$, $D + (Ri +) 256/225 = 2^8/5^2 \times 3^2$.

The intervals of the series — —, on the other hand, are among the most beautiful in music and deeply move the heart. Only the ascending fifths are used, for, as it was in the series —, the descending fifths lead to confused meanings by superimposing their passive character upon that of the series. We thus have $F\sharp - - (Ma\ t - -) 25/18 = 5^2/3^2 \times 2$, $D\flat - - (Ri\ k - -) 25/24 = 5^2/3 \times 2^3$, $A\flat - (Dha\ k -) 25/16 = 5^2/2^4$, $E\flat - (Ga\ k -) 75/64 = 5^2 \times 3/2^6$, $B\flat - (Ni\ k -) 225/128 = 5^2 \times 3^2/2^7$.

By comparing their ratios we can at once precisely analyse the subtle differences of expression between these intervals. We can see for example that $A\flat - (Dha\ k -) 5^2/2^4$ will be pure, absolute, immense sadness, while $E\flat - (Ga\ k -) 5^2 \times 3/2^6$ will temper this sadness by some sunshine ($3/2$), some ray of hope.

If we add a few elements of either a series + + + or a series — — — which are not used in musical practice, we can complete the cycle of intervals, leaving no room for any new shruti.

Here too it should be noted that whenever a common interval appears in two of the series, the constituents of the ratios which form the two almost identical intervals come to represent the same expression through two different channels. For example, if we compare the $B + 243/128$ of the basic series and the $B + 256/135$ of the series +, we should first note that $256 = 2^8 = 128 \times 2$, $243 = 3^5$, $135 = 5 \times 3^3$.

In one case we have $243/128 = 3^5/2^7$, that is the fifth degree (the most materialized degree) of $3/2$ joy, activity.

In the other case $256/135 = 2^8/5 \times 3^3$, that is the expression of $2^3/5$ ($A\flat +$ i.e. passion, love), sobered by the expression of $2^5/3^3$ ($E\flat_n$), tenderness, expectancy.

Both lead to the same expression: boldness, desire, pleasure.

THE CYCLE OF THE ŚHRUTIS



The peculiar leap of the fifth element of each series into an interval belonging to a higher or lower series has many implications in the philosophy of sound and of numbers, as well as special applications in the domain of physics, with which we hope to deal in some other work.

The cycle of intervals gives us a division of the octave into fifty-three. This exactly corresponds with the number of letters in the complete phonetic alphabet of Sanskrit grammarians. This is based on five places of articulation, to each of which corresponds a vowel (which can be long or short), a nasal and four consonants (corresponding with a pushing effort and a stopping effort, both of which can be dry or aspirate). To these are added all further possible mixed vowels, sibilants, etc., to a total of fifty-two letters. Over and above these is counted the sacred syllable (AUM) considered the origin and end of all the rest and corresponding with the Sa (C) of music which has a similar function with regard to all the other śhrutis.

Musical sounds therefore number fifty-three, though the disjunction of eight savarts at each half-tone is usually theoretically divided into two to form the sixty-six-śhruti scale. Thus the laws that govern musical and articulate sound are strictly parallel and interdependent, both kinds of sound serving, though on different planes, to manifest ideas.

Since the series ++ is not usually used in music, five other series of five intervals each (more or less), remain at our disposal. These are the ascending and descending basic series, the ascending series —, the descending series + and the series ——. These five groups of sounds, we have already seen, were known to ancient Indian music as the five śhruti-jātis or classes of intervals.

Śhārṅgadevā gives them the following ancient names:

Madhyā (moderate): basic series ascending

Āyatā (large): basic series descending

Mṛidu (tender): series —

Karuṇā (pathetic): series — —

Diptā (fiery): series +

The expression conveyed by these different classes of intervals has nothing arbitrary about it but corresponds with physical facts upon which all music depends. They are used everywhere, though more or less instinctively, by good singers or players of stringed instruments.

The fact that the division of śhrutis given by Śhārṅadevā does not exactly correspond with the one we have arrived at should not surprise us, for as we have already seen, the *Saṅgītā Ratnākarā* presents a mixture of elements from different systems brought together rather haphazardly, and its conclusions are therefore not always reliable.

The Scale

ग्राहः स्वरसमूहः स्यात्

"The scale (grāmā) is the collection of the notes" (*Saṅg. Mak.* 1, 49; *Saṅg. Ratn.* 1, 4, 1; *Saṅg. Darp.* 1, 95).

A scale is not a group of sounds arbitrarily chosen. The building of any scale involves physical laws which are necessarily respected by all men at all times. It is only through disregard of the natural intervals, resulting from a temporary perversion of taste, that, from time to time, people try to construct arbitrary musical systems or instruments which do not abide by the laws of physics. But such systems, like that of Aristoxenes for example, always finally give way before the fundamental laws of consonance which are the basis of all music.

A scale is formed, not as a more or less regular succession of ascending or descending notes, but first of all as a frame defined by the most perfect consonances, the gaps in it being gradually filled with less and less perfect intervals.

We start, therefore, with the octave, representing the relation of the full to the half string length, or the ratio of vibration $2/1$. Then come the two intervals of fifth and fourth representing respectively the relation of a full string to two-thirds and three-quarters of its length, or the ratios of vibration $3/2$ and $4/3$.

These three intervals, octave, fifth and fourth, form the fixed frame C F G C (Sa Ma Pa Sa). They divide the octave into two main limbs or "aṅgās"—C F and G C (Sa Ma and Pa Sa) separated by a major tone F G (Ma Pa) = $9/8$. These two parts of the octave were known to the Greeks as "tetrachords" because, with two notes more within each of them, they formed the two four-stringed halves of the octave.

If, to fill each of the tetrachords, we take the most consonant

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intervals (those composed of simple ratios involving prime numbers not higher than 5), we obtain the basic harmonic scale of seven notes:

C	D	E	F	G	A	B	C
$\frac{1}{1}$	$\frac{9}{8}$	$\frac{5}{4}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{5}{3}$	$\frac{15}{8}$	$\frac{2}{1}$
1	8	4	3	2	3	8	1
Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa

There is, however, an alternative division. This consists in substituting for E (Ga) $\frac{5}{4}$ and B (Ni) $\frac{15}{8}$, E \flat (Ga komalā) $\frac{6}{5}$ and B \flat (Ni komalā) $\frac{16}{9}$ respectively. This gives the scale:

C	D	E \flat	F	G	A	B \flat	C
$\frac{1}{1}$	$\frac{9}{8}$	$\frac{6}{5}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{5}{3}$	$\frac{16}{9}$	$\frac{2}{1}$
1	8	5	3	2	3	9	1
Sa	Ri	Ga k.	Ma	Pa	Dha	Ni k.	Sa

If both scales are taken together, we get the basic scale of nine notes as it was used in ancient North Indian music.*†

* These divisions form what is known as the Diatonic divisions of the scale, because each tetrachord contains two full tones.

There is, however, another division, known to the Greek theorists as the Chromatic, which still forms the basic scale of South Indian music. In this scale each tetrachord contains two semi-tones and one minor third:

	C	D \flat	D	F	G	A \flat	A	C
	$\frac{1}{1}$	$\frac{16}{15}$	$\frac{9}{8}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{8}{5}$	$\frac{5}{3}$	$\frac{2}{1}$
	1	15	8	3	2	5	3	1
North Indian:	Sa	Ri k.	Ri	Ma	Pa	Dha. k.	Dha	Sa
South Indian:	Sa	Ri	Ga	Ma	Pa	Dha	Ni	Sa

In this system the two additional notes called Antarā Ga and Kākali Ni are E (Ga) $\frac{5}{4}$ and B (Ni) $\frac{15}{8}$, giving the complete scale of nine notes.

	C	D \flat	D	E	F	G	A \flat	A	B	C
	$\frac{1}{1}$	$\frac{16}{15}$	$\frac{9}{8}$	$\frac{5}{4}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{8}{5}$	$\frac{5}{3}$	$\frac{15}{8}$	$\frac{2}{1}$
	1	15	8	4	3	2	5	3	8	1
North Indian:	Sa	Ri k.	Ri	Ga	Ma	Pa	Dha k.	Dha	Ni	Sa
				Antarā					Kākali	
South Indian:	Sa	Ri	Ga	Ga	Ma	Pa	Dha	Ni	Ni	Sa

This scale does not concern us here since it is never used as a basic scale in North Indian Music.

† The Sanskrit books generally define notes not by string-lengths but rather by their expression, their śhruti, which is the easiest way for trained musicians to recognize them.

The *Saṅgītā Pārijātā* and *Hṛidayā Kautukā* do however attempt to give the relative string-lengths of the different notes.

THE SCALE

In the system known as Pythagorean, which is based exclusively on a succession of fifths and in whose ratios the prime number 5 never appears, the harmonic third E (Ga) $5/4$ and the harmonic 6th and 7th, A (Dha) $5/3$ and B (Ni) $15/8$, are raised by one comma to give A+ (Dha+) $27/16$, which is the perfect fifth from D (Ri) and, consequently, the E+ (Ga+) $81/64$ perfect fifth from A+ (Dha+) and the B+ (Ni+) $243/128$ perfect fifth from E+ (Ga+).

The basic Pythagorean scale of seven notes is thus:

C	D	E +	F	G	A +	B +	C
$\frac{1}{1}$	$\frac{9}{8}$	$\frac{81}{64}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{27}{16}$	$\frac{243}{128}$	$\frac{2}{1}$
Sa	Ri	Ga +	Ma	Pa	Dha +	Ni +	Sa

This gives us two forms of natural basic scale, founded upon the difference of one comma ($81/80$) in A (Dha) (the ancient Pañchamā G). The comma, as we have already seen, was taken as the unit of measurement of the scale.

The larger intervals between the notes of the seven-note scale are further divided to form half-tones. This gives us a division of the octave into twelve half-tones. But, as in the case of the seven main notes, several intervals, several śhrutis, offer themselves. If we choose always the more consonant, we obtain a basic division of the octave into twelve notes which we may call the basic chromatic scale.

Without changing anything in the seven- (or nine-) note scale, but changing the note chosen as starting-point, we obtain several basic scales. Such changes happen periodically, and this is how the scale considered as unaltered (śhuddhā) has changed several times in the course of history. Great caution is therefore needed in interpreting the scales given in ancient treatises.

The unaltered scale of modern North Indian music is the basic harmonic scale of seven notes. It is approximately the scale of Rāgā Bilāval, and is usually known by this name. It corresponds with the major mode of Western music.*

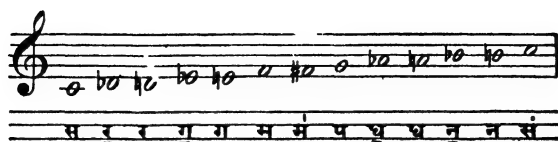
In this scale the intermediary sounds are considered as modifications of the seven main ones. These modifications are always conceived within the frame of the harmonic form of

* The major mode, or Rāgā Bilāval, was first taken as the unaltered scale in the *Saṅgītā Sārā* (compiled at Jaipur between 1779 and 1804) and in the *Nāgmat-e-Asaphi* of Muhammad Rezza in 1813.

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the chromatic scale, in which each note can be altered only in one direction—either flattened or sharpened.

The harmonic form of the chromatic scale thus gives the twelve chromatic notes as:



It should not be forgotten, however, that the altered (vikṛitā) notes, and also certain of the unaltered (śhuddhā) ones, are susceptible to slight changes of pitch according to their expression or śhruti.

Besides the division of the octave into twenty-two or sixty-six śhrutis, which corresponds with what the ancient Greeks called the enharmonic division, and which they considered, as Hindus also do, the basic division of the scale, there thus exist in Indian music—indeed in all music—two main divisions of the octave—one (Diatonic) into seven notes, the other (Chromatic) into twelve. Mataṅgā says:

“Modal scales (mūrch’hanās) are of two kinds—the scales of seven notes or the scale of twelve.” (*Bṛihaddeśhī*, comm. on I, 95.)⁴³

The Three Basic Scales (Grāmās)

प्रायो द्वौ षड्जमध्यमौ ।
केचिद् गान्धारमप्याहुः स (तु) नेहोपलभ्यते ॥

“There are two scales—that of Śhaḍjā (C) and that of Madhyamā (F). Some also mention the scale of Gāndhārā (E) which is not, however, to be found in this world.” (*Dattilam*, II.)

In ancient music three basic scales or grāmās were used. Each was named after its main note (which was not necessarily its tonic).^{*} A difference of tonic was not and could not be

^{*} The Ga grāmā (scale of E; modern scale of F, Ma) was said to start from Pa (modern Dha, A).

“The modal scale (mūrch’hanā) of Śhaḍjā grāmā is Sa, Ri, Ga, Ma, Pa, Dha, Ni.

“The modal scale of Madhyamā grāmā is Ma, Pa, Dha, Ni, Sa, Ri, Ga.

“The modal scale of Gāndhārā grāmā is Pa, Dha, Ni, Sa, Ri, Ga, Ma.” (*Saṅgītā Dāmodarā* I, 40-41.)⁴⁴

their essential difference, for each of the notes in these scales could, successively, be taken as starting-point, thus forming plagal scales or mūrč'hanās which were further used as the basis of the modes. As we have already seen, the two main basic scales, the harmonic and the Pythagorean, are differentiated by the raising or lowering by one comma of the sixth note, the A (Dha) (ancient Pañchamā). This is also exactly the differentiation made in the *Nāṭyā Śhāstrā* between the two main ancient basic scales, the Śhaḍjā and Madhyamā grāmās. For the ancient Hindus, as for Pythagoras, the main scale seems to have been the one we call Pythagorean: in Indian music, it is called Śhaḍjā grāmā, or scale of C (in the modern scale it is the scale of D, Ri). This is probably because its structure is determined by the perfect ascending fifth D A + (Ri Dha +), based upon D (Ri).

The second or harmonic scale was obtained by lowering the A + (Dha +) (ancient Pa) into A(Dha). This was known as the Madhyamā grāmā, or scale of F (in the modern scale it is the scale of G Pa), its basic interval being the perfect descending fifth D G (Ri Pa).

The third basic scale known in ancient times (it is said to be used by celestial beings) was called Gāndhārā grāmā (scale of E, modern scale of F, Ma). In the surviving texts its nature is never explained in sufficient detail. There is a certain likelihood that it was based upon ratios in which the prime number seven predominates. Such a scale is said to have magical properties.

Since medieval times the differentiation of the grāmās has, in practice, been abandoned and all the scales have come to be considered as modifications of the one Śhaḍjā grāmā,* particularly since the note Śhaḍjā itself became the universal tonic, and the basic notes of the grāmās came to be taken as their tonic. Hence:

"All worldly music (deśhī) comes from the Śhaḍjā grāmā."
(*Svar. Kal.* 5, 17.)⁴⁷

* "The basic scales (grāmās) formed by the different arrangements of the svarās are said to be three. They are known by the names Śhaḍjā(C), Madhyamā (F) and Gāndhārā (E). They are the basis of modal scales (mūrč'hanās) and the Śhaḍjā grāmā is the most perfect of the three. The modes obtained in the two other grāmās are derived from the Śhaḍjā grāmā."
(Ahobalā, *Śaṅgītā Pārijātā*, 97-98.)⁴⁸

"The Gāndhārā and Madhyamā grāmās are considered to be out of use. Their definitions are given only so that they may not be mistakenly re-invented." (*Rāgā-tattvā Vibodhā*.)⁴⁹

"The modal scales begin from C (Sa) in the middle octave." (*Śh. tat. Ratn.* VI, 7, 47.)⁴⁸

The three notes chosen as the basis of the three grāmās—D, G, F (Ri, Pa, Ma) are those which, besides the tonic, never, in modal music, bear alteration of one comma, as do all the other notes. These three, therefore, are fixed points in all scales and no confusion can arise when intervals are measured in relation to them. This, for two of them, is remarked by Mataṅga:

"Why is it that the basic scales (grāmās) are called by the names of Śhaḍjā (C) and Madhyamā (F)? They are so called because these two notes are never altered. It is because they are never altered that they are said to belong to the kin of the Gods." (*Bṛihaddeśhī*, comm. on 92; also quoted by Simh. comm. on *Saṅg. Ratn.* I, 4, 6–8.)⁴⁹

Flats and Sharps

As we have seen, all notes distinct from the seven notes of the basic scale are considered modifications of them. And since, between two notes, there are several intermediary sounds, these modifications are necessarily of different kinds.

"When a note rises by one interval (śhruti), it is called "tīvrā" (sharp). If it rises by a further śhruti it becomes "tīvratarā" (very sharp). If the note rises by still one more śhruti, it becomes "tīvratamā" (extremely sharp), and when it is raised by four śhrutis, the sages say that it takes the name of "ati-tīvratamā" (extra extremely sharp).

"If a note is lowered, it is called komalā (flat); when it is lowered by one śhruti it is komalā, but if it is lowered by two śhrutis it is called 'pūrvā'." (Pūrvā is now called ati-komalā.) (*Saṅgītā Pārijātā*, 68–71.)⁵⁰

In most cases, this means that a note raised by a minor half-tone ($25/24$) is said to be sharp (tīvrā), by a limma ($256/243$) "very sharp" (tīvratarā); by a major half-tone ($16/15$) "extremely sharp" (tīvratamā).

Similarly, a note flattened by a half-tone equal to one śhruti (usually the minor half-tone, $25/24$), is said to be "komalā" (flat) and when it is flattened by a larger half-tone (the limma, $256/243$, or the major half-tone, $16/15$) it is said to be "ati-komalā" (extremely flat).

THE SCALE

Since this classification, though exact, may sometimes be misleading because of the different intervals represented by the śhrutis, we shall use here, as is often done, only the more general terms komalā (flat) and tīvrā (sharp); the tuning symbol, and the notation itself, will always show exactly which sort of flat or sharp is being used.

The Three Main Octaves (Saptakās)

Music is mainly developed within three octaves. In singing, they correspond with the resonance of chest, throat and head. These three octaves are called "low" (mandrā), "medium" (madhyā) and "high" (tārā).

"In practice there are three (octaves in singing)—the lower one (resounding) in the chest, the middle one in the throat and the higher one in the head. Each being the double of the other." (*Saṅg. Mak.* 4, 19 and *Saṅg. Ratn.* 1, 3, 7.)^{51*}

To represent these octaves in Indian notation, we will use, as is often done, a dot above the note for the higher octave (ऋ) and a dot below for the lower octave (ऌ), the middle octave being left as it is (ऩ). For the second higher octave two dots above will be used, and for the second lower octave two dots below.

* Similarly:

"[The octaves are] in order: 'low octave' in the heart, 'middle octave' in the throat, 'high octave' in the head." (*Saṅg. Darp.* 1, 49).⁵²

And:

"The lower octave has its place in the chest, the middle octave in the throat, the high octave in the forehead. Although they are similar, each is respectively the double of the preceding one." (*Nārada Samhitā*).⁵³

PART II
TECHNIQUE

CHAPTER IV

NOTATION

The Elements of Music

BEFORE we can proceed to the study of the different modes or rāgās, we must analyse in detail the various elements used in music and find a suitable method for writing them down.

In modal music, as we have seen, absolute pitch, that is the frequency of the sound-vibrations, is first considered, and then the relative pitch of the sounds, that is their relation with a given sound chosen as tonic. Further, all the sounds employed within the octave will be considered as modifications of seven main sounds or svarās.

These sounds can be soft or loud, they can be approached in different ways and variously ornamented, they can follow one another according to various sequences and rhythms.

To express all these intricacies in writing, a mode of notation has to be evolved.

Several ways of writing music have been used in different countries at various periods of history. In the system of notation adopted here there is almost nothing new. The ancient Indian method of notation has been fully used and only elements that were found inadequate or missing have been borrowed from other existing musical systems, so as to avoid, as far as possible, all innovation.






Notation of the Intervals (the Śhrutis)

For facility of execution (preferably on an Indian keyboard,* until the ear is trained to play them accurately on a stringed instrument), we have adopted for the śhrutis the following notation (C being always the tonic):

* That is any keyboard, such as the Visva Bharati's Śhruti Veṇu, designed to produce the exact intervals used in Indian music (as shown on p. 50-54)

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I. In staff notation.

The notes of the diatonic series based upon C are written, as usual, . Notes lowered by one comma are written . Those raised by one comma are written . The rare notes raised by two commas are written , those lowered by two commas . Thus the notation of the notes in ordinary use is:



II. In the Indian syllabic notation, a triple line is used.

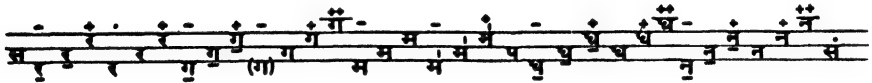
The notes of the ordinary harmonic scale based upon Sa (C) are written on the middle line, notes lowered by one comma on the lower line, notes raised by one comma on the higher line, thus:

$$\begin{array}{c} \text{—} \\ \text{—} \\ \text{—} \end{array} \text{ (= Ga k}_n \text{) } \quad \begin{array}{c} \text{—} \\ \text{—} \\ \text{—} \end{array} \text{ (= Ga k +) } \quad \begin{array}{c} \text{—} \\ \text{—} \\ \text{—} \end{array} \text{ (= Ga k -) }$$

Additional lines can be added for the rare notes raised or lowered by two commas:



Thus the notation is:



GENERAL NOTATION I

Staff notation

Once the notes on any instrument have been tuned to the proper intervals (śrutis) for a given mode, very few additional

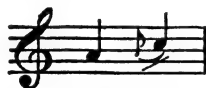
NOTATION

signs are necessary to write the themes of Indian music in staff notation. The additional signs adopted here are the following:

(a) *Glissando* (*mīḍā*, the ancient *vali*). A glide touching all the intermediary sounds between two notes will be written:



(b) *Portamento* (*ghasīṭā*, the ancient *kurulā*). Beginning the note from a grace note at the pitch of the preceding one, or even from a lower note, and then gliding rapidly to its own pitch, will be written:



sung la do-o

(or, as in Rameau)



la do-o

(c) A *grace note* (*khaṭkā*, the ancient *kampitā*) is noted, as usual, ♪ before the beat and ♪ starting from the beat, but always rapid.



sung si si-do

(d) *Slow grace notes* (*līnā*) are written as sung:



(e) *Mordents* (*tiripā* and *sphuritā*, modern *hillolā* and *giṭkiri*), if of normal amplitude, will be written as usual ♯ and ♯ ; but if the mordent is only a small vibration, less than half a tone in amplitude, it will be written between brackets: (♯).

GENERAL NOTATION II

Indian syllabic—Sol-fa—notation

We shall follow the classical system used by Bhāṭkhaṇḍe, marking each note by its first letter and using the sign udāttā (raised) ($\overset{1}{\text{म}}$) above the letter for tivrā, and anudāttā (lowered) ($\underset{2}{\text{र}}$) below the letter for komalā. We shall however drop all the vowel-signs to leave as much room as possible for additional signs. The śhuddhā svarās will thus be written:

स र ग म प ध न

Komalā (flat) svarās will be written: $\underset{2}{\text{र}} \underset{2}{\text{ग}} \underset{2}{\text{ध}} \underset{2}{\text{न}}$, and *tivrā* (sharp) Ma as $\overset{1}{\text{म}}$

Mīḍā (gliding, the ancient vali.) A continuous line above the svarās means “portamento” (mīḍā):

$\overline{\text{स म}}$

If a note begins with a rapid portamento (ghasīṭā) from a grace note at the pitch of the preceding note, this is indicated by an open bracket. For example: स(ग means स ग



Ornaments (gamakās or alamkāras) are written in small letters: मरु मरु They must be sung very quickly without interfering with the mātrā. Melody should be first practised without them.




$\overbrace{\text{मरु मरु}}$ is written मरु




The slow trill (gadgaditā, sobbing) स सि सि सि etc., is written as sung. The quick trill, like a tremolo (corresponding, for example, with गगगगगगगग, etc.) is written ग~~~~~


Grace notes (khaṭkā, ancient kampitā) can begin with the beat of the mātrā or before. The mātrā-sign will, therefore,


NOTATION


be written in its proper place either at the beginning of the grace or after it—either  or 

 is the *mordent* (*gamakā*—*tiripā* or *hillolā*) using the note above, e.g.:  means 

 is the *mordent* (*gamakā*—*sphuritā* or *giṭkiri*) using the note below. E.g.:  means 

 means increasing the volume of the voice.


 means decreasing the volume of the voice.


> (above the svarā) means accentuated ().

S means: hold the same sound for another mātrā.



— no sound.

! (above the notes) means “staccato”, i.e. stop the sound as soon as the note has been uttered, like the snapping of a string.

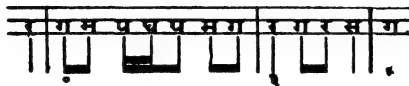
• A dot above means higher octave (*tārā*). E.g.  , etc.

• A dot below means lower octave (*mandrā*). E.g.  , etc.

• and • A double dot above means the second higher octave; a double dot below, the second lower octave.

 Groups of notes sung as one word or sentence without taking breath are indicated by a slur . In this case the first note is always slightly accentuated and the last one always softer.

and | The end of each time-beat is shown by a thin vertical line. The end of each rhythm-unit (*tālā*) is indicated by a thick vertical line. The *samā* is marked x, *tāli* 2, 3, etc., *khāli* o.



|| The end of a piece, or of a part, is indicated by a double

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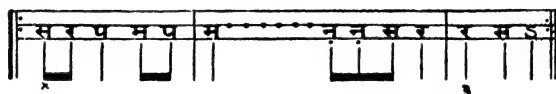
line. If it is the general end after repetitions, the word "fine"* (end) is added. E.g.:



⋮ ⋮ Repeat.

Any part which is to be repeated is enclosed within double vertical lines; those at the beginning have two dots after them ⋮, those at the end two dots before them :.

E.g.:



D.C. The letters D.C. (Da capo = from the beginning) placed after a double bar at the end of a passage mean that one should start again from the very beginning.

p means "piano" (पियानो, soft, sūkṣhmā).

pp „ "pianissimo" (पियानिस्सिमो, very soft, ati-sūkṣhmā).

f „ "forte" (फोर्ते, loud, puṣṭaḥ).

ff „ "fortissimo" (फोर्तिसिमो, very loud, atipuṣṭaḥ).

mf „ "mezzo forte" (मेड्जो फोर्ते, moderately loud, madhyā).

"a tempo" means "return to the original movement or speed."

Division of Mātrās

One time-unit or mātrā is represented by a vertical line below the note.

* Pronounce: फिने.

According to an international convention, all musical terms and abbreviations used in Western music are in the Italian language. We hope our Indian readers will not object to this introduction of foreign terms into the Indian notation: the use of such an international convention has the great advantage of making both Indian and staff notation easily understandable in every country.

NOTATION

A note lasting one mātrā is thus written: स

A note lasting two mātrās: स स

A note lasting three mātrās: स स स etc.

स स
स स स

One mātrā can be divided into:

One mātrā is स

(a) two equal parts, written स र

1/2 mātrā is स



(b) three equal parts written स र ग



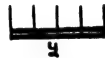
(c) four equal parts written स र ग म or स र ग म



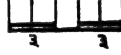
1/4 mātrā is स



(d) five equal parts written स र ग र स



(e) six equal parts written स र ग म प ध



(f) eight equal parts written स र स र ग म ग म



1/8 mātrā is स



In this way all the possible time divisions can be written.
For example:

One quarter mātrā and 3/4: स र स ; 3/4 and 1/4: स स र




Two quarter mātrās and one half: स र स ; one half and two






quarters: स स र ; one quarter, one half, one quarter: स र स स ;



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three $\frac{1}{6}$ mātrās and one half:  ; one eighth of a mātrā

and $\frac{7}{8}$:  ; two $\frac{1}{8}$ mātrās and $\frac{3}{4}$:  ; four $\frac{1}{8}$

mātrās and $\frac{1}{2}$:  ; etc.

Tempos (Layā)

अथ त्रयो ज्ञेयाः सिद्धा द्रुतमध्यविलम्बिताः ।

“There are three tempos—fast, medium and slow.” (*Dattilā*, 151.)

Indian music, theoretically, knows three main tempos (*layā*), each being the double of the last. These are:






Vilambitā (slow), in which each beat (*tāli*) is said to last about one second (a crotchet = 60).

Madhyā (medium), in which each beat is said to last about $\frac{1}{2}$ second (a crotchet = 120).







Drutā (fast), in which each beat is said to last about $\frac{1}{4}$ second (a crotchet = 240).

In each case the exact tempo will be expressed, as is customary in Western music, by the number of “time units (*mātrās*) per minute” as they are given by an ordinary *metronome*. For example, a crotchet = 54, a crotchet = 40 (*mātrā* = 54, *mātrā* = 40) mean that there are respectively 54 *mātrās* and 40 *mātrās* per minute.

The notes, according to their length, usually bear the following names:

Chatasrā. semibreve, lasts 4 mātrās (units)	o	
Guru (long), minim, „ 2 „		
Laghu (short), crotchet „ 1 „		

NOTATION

Drutā (fast), quaver lasts 1/2 mātrās (units)			
Aṇu-drutā (atom-fast), ,, 1/4 ,, semi-quaver			
Aṇu-aṇu-drutā (demi- ,, 1/8 ,, semi-quaver)			etc.

In a more ancient system (see Svarup: *Theory of Indian Music*, p. 106) the mātrā or time-unit is said to be the shortest time in which a syllable can be pronounced. The normal human pulse-beat lasts three mātrās. The usual musical beat, or clap of the hand, is then called laghu (short) and is said to last from 3 to 9 mātrās (usually 4).

According to this system the time-divisions are as follows:

- (J) (J) Laghu (short) lasts 4 mātrās.
- (J) (L) Drutā (fast) lasts 2 mātrās.
- (J) (L) Kalā (portion) (or Aṇudrutā, or Aṇu, or Virāmā) lasts 1 mātrā.

Nimiṣhā (wink) is 1/8 of a mātrā.

Kāṣhṭhā (limit) 1/8 of a Nimiṣhā.

Lavā (fragment) 1/8 of a Kāṣhṭhā.

Kṣhaṇā (instant) 1/8 of a Lavā.

- (J) (S S) Guru (long) = 8 mātrās.
- (J) (S S S) Plutā (extended) = 12 mātrās.
- (o) (S S S S) Kākāpadā (crow-foot) = 16 mātrās.

The tempos, like the scales, are connected with moods:

“In a laughing or a loving mood use a moderate tempo; in disgust and fear, a slow one; in the heroic mood, in wrath and in wonder, a fast tempo.” (*Viṣh. Dharm.* III, 18.)⁵⁴

CHAPTER V

RHYTHM (TĀLĀ)

उत्पत्त्यादित्रयं लोके यतस्तालेन जायते ।
कीटकादिपशूनाञ्च तालेनैव गतिर्भवेत् ॥
वा (या ?) नि कानि च कर्माणि लोके तालान्निवानी च ।
आदित्यादिब्रह्माण्डञ्च तालेनैव गतिर्भवेत् ॥

“The arising, enduring and disappearance of the three worlds come from rhythm (tālā). From the smallest worm onward, all animals move by rhythm. All work in the world depends on rhythm. It is by rhythm that the sun and the planets move.” (Quoted in *Rāgā Kalpadrumā*.)

गीतं नाचं तथा नृत्यं यतस्तालेन विधिष्ठितम् ।

“Song, dance and the playing of instruments depend upon rhythm.” (*Saṅg. Ratn.* 5, 2; *Śh. tat. Ratn.* 6, 9, 1.)

Indian music uses a great number of rhythms or “tālās”* and they are often of great subtlety and complexity.

In the Ālāpā, the first exposition of the theme of a rāgā, though there are rhythmic-units (mātrās), there is no complex rhythm. This will be introduced only when, after the Ālāpā, the “full exposition of the theme in slow tempo”, the development of variations requires all kinds of rhythms. The usual notation of rāgās is necessarily limited to the first exposition of the theme in the Ālāpā, and cannot therefore use any definite tālā.

The syllables (bols) given are the mnemonic names of the different strokes on the drums (tablā or pakhāvajā) used in stating the base rhythm without ornamentation. For the tablā, this basic rhythm is called “thekā”. The syllables used to represent the strokes on the large drum (pakhāvajā) differ from those for the tablā: they are called “thapiyā”.

* “The syllable ‘ta’ represents Śhaṅkarā (Śhivā) the ‘Giver of Happiness’, the syllable ‘la’ the ‘Lady of the Mountain’ (Pārvati). Rhythm is called ‘tālā’, because it is the union of the First Principle (Śhivā) and his Energy (Śhakti=Pārvati). Śhivā and Śhakti being its very nature, Rhythm (tālā), one with the life-breath, is meritorious, leads to fame, gives enjoyment and Liberation and so is cherished by Yogis.” (Quoted in *Rāgā Kalpadrumā* and *Śh. tat. Ratn.* 6, 9, 3, in the latter the first two lines only.)⁶⁵

RHYTHM

A rhythm, or *tālā*, consists of three elements—an initial beat called “*samā*”, other beats called “*tāli*”, and empty beats or rests called “*khāli*”. The middle point of a *tālā* is called “*visamā*”.

The first beat of each *tālā* (the “*samā*”) is marked x or 1, the subsequent beats (“*tāli*”) are marked 2, 3, 4, etc. the empty beats or rests (“*khāli*”) are marked o (or ♪).

Each of the equal time-units (represented here by distinct syllables) is called a *mātrā*.

The Main Rhythms (Tālās)

हुसबान देहस नासिका हुसबानके ।
हासहीनं तथा गीतं नासाहीनं हुसबान ॥

“The face predominates in the body and the nose is in the middle of the face. A song without rhythm is like a face without a nose.”
(*Saṅg. Ratn., Nāḍārthā Rāgā mālā.*)

Tālā Dādārā 6/4

6 *mātrās* (time-units), one main beat, two divisions: ♪. ६ —
(*Tablā bols*).

♪.
| Dhīn Dhīn Dhā | Dhā Ti Nā |
| x o |

The alternate measure-bar can have the variation:

♪.
| Dhīn Tin Dhā | Dhā Ti Nā |
| x o |


Pātī Tālā 6/4

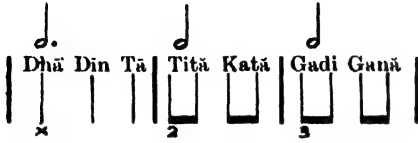
6 *mātrās*, 2 main beats, 2 divisions: ♪. ♪.

♪ ♪.
| Dhā ti | Dhā gó Tū nā |
| x 2 |

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Tālā Tīvrā 7/4

7 mātrās, 3 main beats, 3 divisions: 
(Pakhāvajā bols)




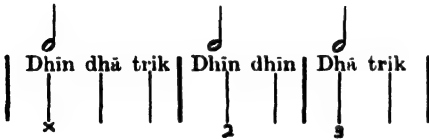
Teorā 7/4

7 mātrās, 3 main beats, 3 divisions: 

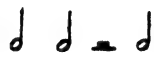


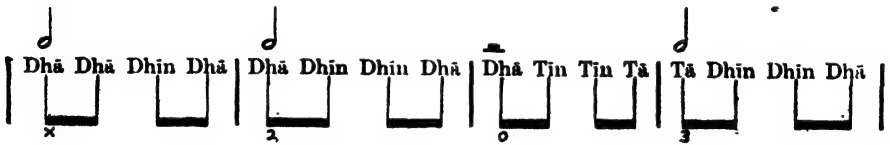
Rūpakā 7/4

7 mātrās, 3 main beats, 3 divisions: 
(Tablā bols)

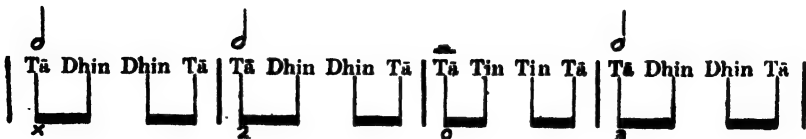


Tritālā 8/4

8 mātrās, 3 main beats, 4 divisions: 
(Tablā bols)




Or:



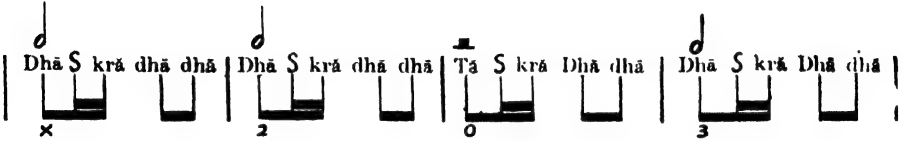
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Tīlavāḍā 8/4


8 mātrās, 3 main beats, 4 divisions: 
(Tablā bols)



Or:




Mattā Tālā 9/4

9 mātrās, 6 main beats, 9 divisions: 
(Tablā bols)




Kulā Tālā 9/4

9 mātrās, 2 main beats, 3 divisions: 



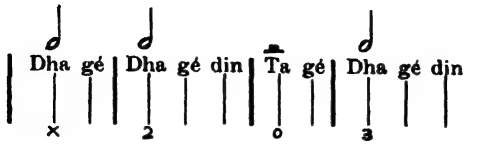
Chandrākrīḍā Tālā 9/4

9 mātrās, 4 main beats, 4 divisions: 



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Jhapātālā 10/4
10 mātrās, 3 main beats, 4 divisions: 

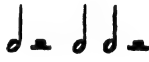


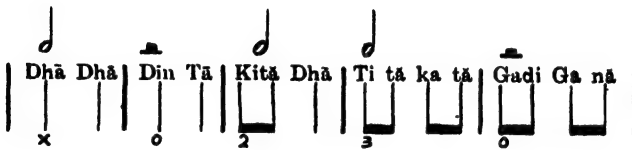
also given (tablā bols) as:



Or (pakhāvājā bols):



Sūlā Tālā 10/4
10 mātrās, 3 main beats, 5 divisions:
(Pakhāvājā bols) 



Surāphāktā 10/4
10 mātrās, 3 main beats, 5 divisions: 



RHYTHM

Jagāpālā Tālā 11/4

11 mātrās, 4 main beats, 4 divisions:

Dhīn Dhīn Na kā Dhīn dhīn Dhūgē tirākitā Dhīn Na kā Dhī nakā

Bhānumati Tālā 11/4

11 mātrās, 4 main beats, 4 divisions:

Dhā trik Dhīn nakā Dhitā dhitā Dhē titā Katā gadi Ganā

Maṇḍarī Tālā 11/4

11 mātrās, 4 main beats, 4 divisions:

Dha Dhi tā Ki tā Dha ki tā Ta ki tā

Chautālā 12/4

12 mātrās, 4 main beats, 6 divisions:
(Pakhāvajā bols)

Dhā dhā Dīn Tā Ti tā Dhā Dīn Tā Ti tā ka tā Ga di ga nā

Ekā Tālā 12/4

12 mātrās, 4 main beats, 6 divisions:
(Tablā bols)

Dhīn dhīn Dhāgi Trikā Tū Nā Kat Tā Dhīn Trikā Dhīn Nā

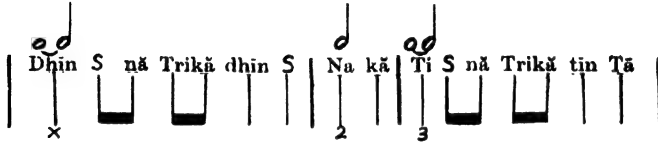
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Or:



Udayā Tālā 12/4

12 mātrās, 3 main beats, 3 divisions:



Pharodastā Pañjā Tālā 14/4

14 mātrās, 5 main beats, 7 divisions:

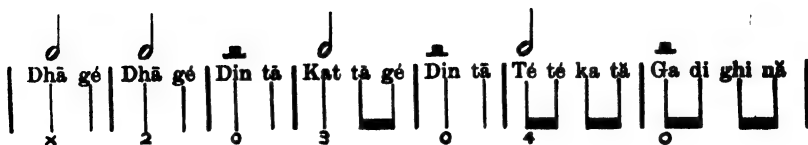


Ādā Chautālā 14/4

14 mātrās, 4 main beats, 7 divisions:
(Tablā bols)



Or:



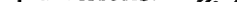
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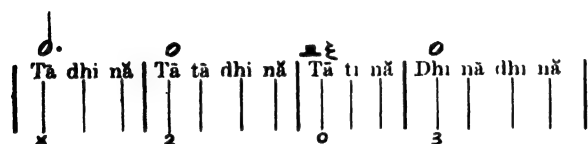
Dīpāchandī 14/4


14 mātrās, 3 main beats, 4 divisions: (Tablā bols) $\text{♩} \cdot \text{♩} \text{—} \text{♩} \cdot \text{♩}$

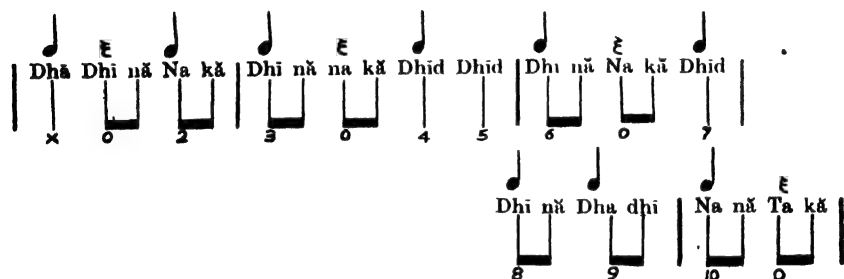


Yatã 14/4

14 mātrās, 3 main beats, 4 divisions: 

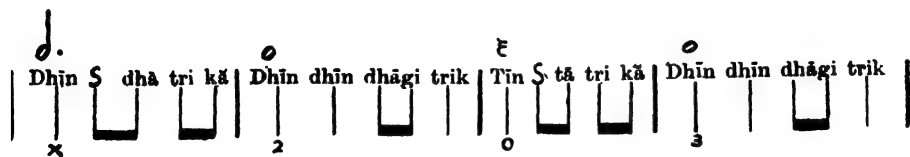
*Brahmā Tālā* 14/4

14 matras, 10 main beats, 14 divisions: 



Jhūmārā Tālā 14/4

14 mātṛās, 3 main beats, 4 divisions: (Tablā bols)



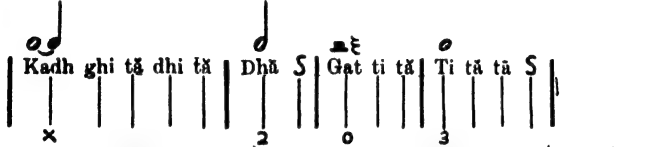
NORTHERN INDIAN MUSIC

The alternate measure-bar can have the variation:

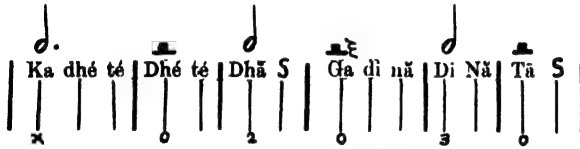


Dhamār Tālā 14/4

14 mātrās, 3 main beats, 4 divisions:
(Pakhāvajā bols)

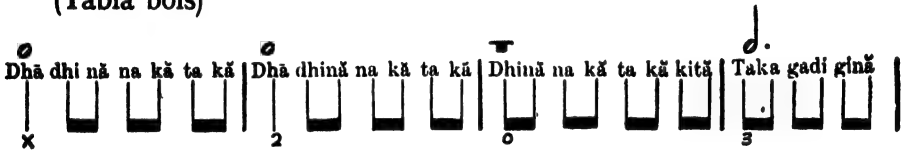


Or: 14 mātrās, 3 main beats, 6 divisions:



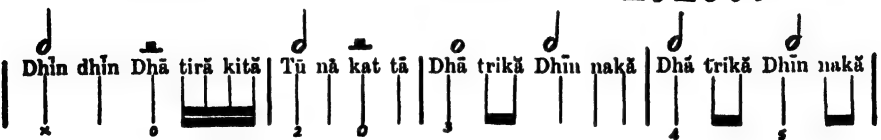
Gajā Jhampā Tālā 15/4

15 mātrās, 3 main beats, 4 divisions:
(Tablā bols)



Pañjā Sādhā Tālā 16/4

16 mātrās, 5 main beats, 7 divisions:



RHYTHM

Chhakkā Tālā 16/4

16 mātrās, 6 main beats, 8 divisions:

Dhīn dhīn Dhā tirā kitā Tūnā Kattā Dhāgē titā Gadi ganā Nāgē tirā kitā Tūnā kattā

Udīraṇā Tālā 16/4

16 mātrās, 3 main beats, 3 divisions:

Dhā S Ki tā Ki tā Dhīn Ti tā Tā S Ki tā Tā kū tīn

Śhikharā Tālā 17/4

17 mātrās, 3 main beats, 4 divisions:

Dhā trik dhinā nakā thun gā Dhinā nakā dhunā kitā takā dhetā Dhā titā Katā gadi ginā

Syncopation

“From the point of view of rhythm, the attack of the sound can be of three kinds: ‘on the beat’ (samā), ‘after the beat’ (atitā) and ‘before the beat’ (anāgatā).

“When the rhythm follows exactly the same timing as the song [dance, instruments], etc., and the stroke [of the drum] comes together with the rhythmic clap of the hands, this is known as the attack ‘on the beat’ (samā).

“When the attack [of the note] in the song comes after the clap of the hand, this is known as ‘after the beat’ (atītā).

“And when the note has a slight tendency to be attacked early, when the hand is just lifted to clap, this is known as the attack ‘before the beat’ (anāgatā).” (*Saṅgītā Sārāṃṛitā*, Tālā (13th) Chapter, p. 166, Madras ed.)⁵⁵

Played “after the beat”, the note is said to express reluctance, doubt.

Played “on the beat”, the note expresses precision, soberness.

Played “before the beat”, the note is said to express joy, liveliness, vitality.

CHAPTER VI

MELODIC DEVELOPMENT

Varṇā (Melodic Movement)

ALL the kinds of variations or melodic forms through which a scale can be developed into a melody are called “melodic movement” (varṇā). There are three possible elements of melodic movement—ascending, descending, keeping to the same note. A mixture of these three is said to form a fourth kind of melodic movement, called “wandering” (sañchārī).

“The action of singing is called ‘melodic movement’ (varṇā). It is of four kinds, defined as: level, ascending, descending and wandering.” (*Saṅg. Ratn.* 1, 6, 1; *Saṅg. Darp.* 1–160.)⁵⁸

“Holding the same note continuously is called sthāyī (level)* the two others are as their names indicate: ascending is called āroḥā, descending is called avarohā; a melodic movement combining all these features is called sañchārī (wandering).” (*Saṅg. Ratn.* 1, 6, 2–3; *Saṅg. Darp.* 1, 160–161; *Śh. tat. Ratn.* 6, 7, 82.)⁵⁸

The “level” (sthāyī) melodic movement is also described as follows:

“Where differences are numerous, this is called ‘level’ (sthāyī) melodic movement. And when a motive begins and ends on the same note this is also ‘level’ (sthāyī).” (*Śh. tat. Ratn.* VI, 7, 84–85.)⁵⁹

Tānās (Melodic Figures)

ऊनपञ्चाशत्कांति तानत्रयभेदाच्च कथ्यन्ते ॥

“The 490,000,000 tānās are divided into three categories.”
(*Nār. Samh.* 2, 64.)

Tānās are the melodic figures formed by combining the notes together.

* “The singing of verses on one note only is called sthāyī (level) melodic movement.” (*Dattilam*, 98.)⁶⁷

“The weaving together of the notes forms the *tānās* (melodic figures).” (*Nār. Śhik.* I, 2, 6.)⁶⁰

These melodic figures are divided into two chief categories, those that belong to one mode only and those belonging to several modes, the first being known as pure (*śhuddhā tānās*), the second as deceitful (*kūṭhā tānās*). Since a difference in any of the notes brings a change of mode, only figures that make use of all the notes of a mode can be said without doubt to belong to it alone. So the *śhuddhā tānās* are usually said to be identical with the *plagal* forms of the scales (the *mūrch’hanās*).

“The *tānās* (melodic figures) are of two kinds—pure (*śhuddhā*) or deceitful (*kūṭhā*). A pure *tānā* is that through which the form of one *rāgā* only can appear, while a deceitful *tānā* is one through which the form of two or more different *rāgās* may appear because it is common to several. For some unknown reason the ancient writers have not explained the use [of the pure *tānās*] in practical detail. But all agree that their number is eighty-four. In the opinion of some, they are developed from the *mūrch’hanās* (*plagal* scales).” (*Chaturdaṇḍi Prakāśhikā*.)⁶¹

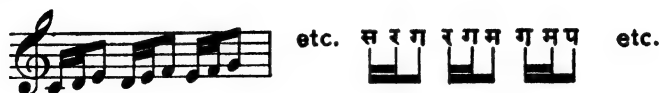
The number of possible combinations of the notes to form melodic figures or *tānās* is theoretically very large.

“In each of the *plagal* scales (*mūrch’hanā*) there are five thousand and forty [possible] *kūṭhā tānās*.” (*Saṅg. Ratn.* I, 4; 33.)⁶³

“In these fifty-six *mūrch’hanās* are counted 282,240 complete (pure) and deceitful (*kūṭhā*) *tānās*.” (*Saṅg. Ratn.* I, 4, 34–35.)⁶⁴

In present-day music the word “*tānā*” is often used for the ancient *alamkāras*. These form groups of notes or small melodic figures that repeatedly recur. When similar *tānās* follow one another in ascending order this is called *āhātī* (rolling).

E.g.



The same descending is called *pratyāhātī* (rolling down).

* “The melodic figures by which a mode, a *rāgā*, can be developed the wise call *tānās* (extensions). They are defined as of two kinds—pure (*śhuddhā*) or deceitful (*kūṭhā*). The secret of the definition of the *śhuddhā tānās* is not to be developed here, so I need not speak of them.” (Quoted in *Śhrimallakṣhyā Saṅgītam*.)⁶²

Mūrch'hanās (Modal Scales)

मूर्चने येन रागो हि मूर्चनेत्यभिसंज्ञिता ।

“That which spans (mūrchhā) the scale of a mode is called mūrch'hanā.” (*Bṛihaddeśhī* 94.)

The term mūrch'hanā (modal scale) was used in medieval music for the different types of scales from which the modes are derived. There are three main types of such scales, and so three kinds of mūrch'hanās.

(1) The first use of the word mūrch'hanā refers to the classification of modes as plagal forms of the basic scale. This way of classification has however been replaced by the “scale-types” or ṭhāṭs.

“The sequence of the seven notes in ascent or descent is called mūrch'hanā. There are seven in each of the two basic scales.” (*Śaṅg. Mak.* 1–66, reproduced in *Chat. Rāgā*, 1, 22. *Śaṅg. Ratn.* 1, 4, 9 and *Śh. tat. Ratn.* 6, 7, 32–44.)⁶⁵

(2) The name mūrch'hanā was also given to the chromatic scale of twelve notes (see above, p. 92).

“The modal scale (mūrch'hanā) should be known to the wise as having twelve notes from which can be built mode-types and melodies in the high as well as the low octave.” (Nandikeśhvarā quoted in *Bṛihaddeśhī*, comm. on 118 and in *Simh. comm. Śaṅg. Ratn.* 1, 4, 15–16.)⁶⁶

(3) Mūrch'hanā was further used for pentatonic, hexatonic, heptatonic and eight- or nine-note scales. This division is now usually known as jāti (see below, section on Jāti).

“The modal scales of seven notes are of four kinds: complete (heptatonic, pūrṇā), hexatonic (ṣhāḍavā), pentatonic (auḍavā) and intercalary (sādhāraṇā). In singing, a scale of seven notes is considered the complete scale, a scale of six notes is called hexatonic, a scale of five notes pentatonic, a scale [of eight or nine notes], making use of the intercalary notes Kākali Ni (Bḥ, Ni śhuddhā) and Antarā Ga (Eḥ, Ga śhuddhā), is called “intercalary” (sādhāraṇā).” (*Bṛihaddeśhī*, comm. on 1, 95.)⁶⁷

The word *mūrch'hanā* is sometimes used in modern music, mostly by professional Muhammadan musicians, to represent melodic ornaments in the form of the mordents tiripā and sphuritā (ω or ψ); these are, however, [more usually called hillolā, or giṭkiri.

Alaṁkāra (Ornamental Vocalization)

शशिना रक्षितेव निद्रा विमलेव नदी लता विपुल्येव ।
अविभूषितेव च स्त्री गीतलङ्कारहीना स्यात् ॥

"A melody without ornament is like a night without moon, a river without water, a vine without flowers, or a woman without jewels." (*Nāṭ. Śh.* 29, 75.)

"An ornamental vocalization (alaṁkāra) is a combination of several 'melodic movements' (varṇās)." (*Saṅg. Ratn.* 1, 6, 3; *Śh. tat. Ratn.* VI, 7, 44.)⁶⁸

Ornaments, now often confused with tānās (melodic figures), are vocalizations, or groups of notes used to adorn the melody, such as are used in the Khyāl style of singing.

Like the varṇās from which they are derived, alaṁkāraś are divided into four kinds. The sthāyī alaṁkāraś (or level ornaments) are simple vocalizings which come back to the note from which they start or to its octave; the ārohi (ascending) ornaments lead from one note to a different higher note; the avarohi (descending) ornaments lead from one note to a lower one; and the sañchārī (wandering) ornaments are elaborate vocalizations combining the previous ones.

The sthāyī (level) alaṁkāraś number seven:

"The seven sthāyī alaṁkāraś are prasannā-ādi* (beginning low), prasannā-antā (ending low), prasannā-ādi-antā (beginning and ending low), prasannā-madhyā (low in the middle); then, kramā-rechitā (orderly gallop), prastārā (the expanded) and prasādā (the serene)." (*Śh. tat. Ratn.* 6, 7, 85-86.)⁷⁰

In the *Bṛihaddeśhī* (comm. on 1, 120) these are defined as follows:

"*Prasannā-ādi* (beginning low) starts from below and ascends to the upper octave, thus: Sa Ri Ga Ma Pa Dha Ni Sa."⁷¹

Do Re Mi Fa Sol La Si Do

"*Prasannā-antā* (ending low) descends from above, thus:

Sa Ni Dha Pa Ma Ga Ri Sa."⁷²

Do Si La Sol Fa Mi Re Do

"*Prasannā-ādi-antā* (beginning and ending low) is low in the beginning and the end and high in the middle, thus:

Sa Ri Ga Ma Pa Dha Ni Sa Ni Dha Pa Ma Ga Ri Sa."⁷³

Do Re Mi Fa Sol La Si Do Si La Sol Fa Mi Re Do

* The word prasannā ("pleasing") is used in music as a technical term synonymous with mandrā ("low"). (*Bṛihaddeśhī*, comm. 1, 120): "The word 'mandrā' (low) is used for a pleasing (prasannā) sound."⁶⁹

“*Prasannā-madhyā* (low middle) is low in the middle or high at the beginning and the end, thus:

Sa Ni Dha Pa Ma Ga Ri Sa Ri Ga Ma Pa Dha Ni Sa.”⁷⁴

Do Si La Sol Fa Mi Re Do Re Mi Fa Sol La Si Do

The span of the three other alamkārās is either less or more than an octave, but definitions of them (in the *Śhivā tattvā Ratnākarā*) do not seem very clear.

Besides those we have named “there are twelve ascending and twelve descending melodic figures used as vocalizations (alamkārās).” (*Śh. tat. Ratn. 6, 7, 94.*)⁷⁵

Vocalizations of this last type, the wandering (sañchārī) alamkārās, are very numerous. “Among them seven are chiefly used by musicians. They are: *tārā-mandrā-prasannā* (high-low-low), *mandrā-tārā-prasannā* (low-high-low), *āvartakā* (whirlpool), *sampradānā* (gift), *vidhutā* (waved), *upalolakā* (rolling), *ullāsītā* (laughing).” (*Śh. tat. Ratn. 6, 7, 96–98.*)⁷⁶

In the *Śhivā tattvā Ratnākarā* (6, 7, 101) these are defined:

(1) *Tārā-mandrā-prasannā* (high-low-low): Like *prasannā-ādi*.

(2) *Mandrā-tārā-prasannā* (low-high-low): Like *prasannā-antā*.

(3) *Āvartakā* (whirlpool):

Sa Sa Ri Ri Sa Sa Ri Sa; Ri Ri Ga Ga Ri Ri Ga Ri; Ga Ga Ma Ma Ga Ga Ma Ga; etc.

Do Do Re Re Do Do Re Do; Re Re Mi Mi Re Re Mi Re; Mi Mi Fa Fa Mi Mi Fa Mi; etc.

(4) *Sampradānā* (gift):

Sa Sa Ri Ri Sa Sa; Ri Ri Ga Ga Ri Ri; Ga Ga Ma Ma Ga Ga; etc.

Do Do Re Re Do Do; Re Re Mi Mi Re Re; Mi Mi Fa Fa Mi Mi; etc.

(5) *Vidhutā* (waved):

Sa Ga Sa Ga; Ri Ma Ri Ma; Ga Pa Ga Pa; Ma Dha Ma Dha; etc.

Do Mi Do Mi; Re Fa Re Fa; Mi Sol Mi Sol; Fa La Fa La; etc.

(6) *Upalolakā* (rolling):

Sa Ri Sa Ri Ga Ri Ga Ri; Ri Ga Ri Ga Ma Ga Ma Ga; Ga Ma Ga Ma Pa Ma Pa Ma; etc.

Do Re Do Re Mi Re Mi Re; Re Mi Re Mi Fa Mi Fa Mi; Mi Fa Mi Fa Sol Fa Sol Fa; etc.

(7) *Ullāsītā* (laughing):

Sa Sa Ga Sa Ga; Ri Ri Ma Ri Ma; Ga Ga Pa Ga Pa; Ma Ma Dha Ma Dha; etc.

Do Do Mi Do Mi; Re Re Fa Re Fa; Mi Mi Sol Mi Sol; Fa Fa La Fa La; etc.

Grace (Gamakā)

गमकः स्वरस्य कल्पभेदः ।

"Graces (gamakās) are the ornaments of notes." (*Saṅg. Darp. comm. 2-4.*)

"When, in singing, a note rises from its own pitch and moves toward another so that [something of the expression of] the second sound passes like a shadow over it, this is called a grace (gamakā)." (*Saṅg. Sam. I, 47.*)⁷⁷

All the ways in which notes can be attacked, ornamented or resolved, are known under the general name of gamakā.

In Indian music these graces are very elaborate and of endless variety. Still they can be analysed: Śhārṅgadevā and Nārādā III consider that their constituent elements number fifteen. Pārśhvadevā reduced this to seven, Nārādā II extended it to twenty-one.

"Gamakās, also called 'roaming about' (charaṇā), are said to be of twenty-one kinds." (*Saṅg. Mak. 2, 17.*)⁷⁸

"The grace that pleases the mind of the hearer is a gamakā. These are of fifteen different kinds, called Tiripā (flurry), sphuritā (throb), kampitā (shake), līnā (melting away), āndolitā (swing), vali (ripple), tribhinnā (threefold), kurulā (curl), āhatā (struck), ullāsītā (laughing), plāvitā (overflow), gumphitā (tied), mudritā (sealed), nāmitā (obeisance), miśhritā (mixed)." (*Saṅg. Ratn. II, 3, 87-89.*)⁷⁹

"Seven of the gamakās are more particularly known. They are sphuritā, kampitā, līnā, tiripā, āhatā, āndolitā and tribhinnā." (*Saṅg. Sam. I, 48.*)⁸⁰

(1) *The Flurry (Tiripā)* (or Tiripu)
now called Hillolā



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“A lovely quivering like a very slight stroke on the drum, lasting only a quarter of a quaver (drutā—i.e. $\frac{1}{8}$ th of a mātrā) is known as Tiripā.” (*Saṅg. Ratn.* II, 3, 89–90.)^{*81}

“When the intervals quickly move round like a whirl, this the connoisseurs of music know as Tiripu.” (*Saṅg. Sam.* I, 52.)⁸²

- (2) *Throb (Sphuritā)*
now called Giṭkiri



“The speed of sphuritā is exactly one-third of a quaver (i.e. $\frac{1}{6}$ th of a mātrā).” (*Saṅg. Ratn.* I, 3, 90.)⁸³

“When intervals throb upwards at the speed of a semi-quaver (aṇu-drutā—i.e. $\frac{1}{4}$ th of a mātrā), the wise call this Sphuritā.” (*Saṅg. Sam.* I, 49.)⁸⁴

- (3) *The Shake (Kampitā)*
now called “Khatkā”



“The Kampitā gamakā lasts a semi-quaver (i.e. $\frac{1}{4}$ mātrā).” (*Saṅg. Ratn.* II, 3, 91.)⁸⁵

“A shake of the note at twice the speed of a quaver (i.e. $\frac{1}{4}$ mātrā) is known as Kampitā.” (*Saṅg. Sam.* I, 50.)⁸⁶

- (4) *Melting away (Līnā)*



“The speed of Līnā is that of a quaver (drutā = $\frac{1}{2}$ mātrā).” (*Saṅg. Ratn.* II, 3, 91.)⁸⁷

“When a note at the speed of a quaver softly melts into another neighbouring note this is called Melting away (Līnā).” (*Saṅg. Sam.* I, 51.)⁸⁸

* The Sanskrit definitions of the gamakās are not always very clear. They are interpreted here in the way that gives the most likely results for the formation of the combined graces. Some of them may however have been misunderstood.

All the definition of gamakās in the *Saṅgitā Ratnākara* are reproduced with a few minor variations in the *Śhivā tattvā Ratnākara* VI, 7, 100–116.

(5) *Swing (Āndolitā)*



“Āndolitā lasts one crotchet (one mātrā).” (*Saṅg. Ratn.* II, 3, 91.)⁸⁹

“Whatever the speed of singing—fast, medium or slow—a swing lasting one crotchet (mātrā) constitutes the grace called Āndolitā.” (*Simh. comm. on Saṅg. Ratn.* II, 3, 90.)⁹⁰

“When there is a rocking of the notes lasting one crotchet or mātrā, this grace is spoken of as a ‘swing’ by connoisseurs of music.” (*Saṅg. Sam.* I, 54.)⁹¹

(6) *The Overflow (Plāvitā)*



“When the shake of the note lasts three crotchets (1 plutā = 3 mātrās) this is called an Overflow.” (*Saṅg. Ratn.* II, 3, 94.)⁹²

(7) *The Ripple (Vali)*
now called Miḍā



“Any kind of fast sliding is called a Ripple (Vali).” (*Saṅg. Ratn.* II, 3, 92.)⁹³

(8) *The Curl (Kurulā)*
now called Ghasiṭā



“Kurulā is like Vali but performed softly with a contracted throat.” (*Saṅg. Ratn.* II, 3, 93.)⁹⁴

(9) *The Sealed (Mudritā)*

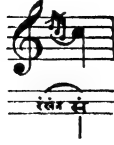
“The gamakā called Sealed is produced by closing the mouth.” (*Saṅg. Ratn.* II, 3, 95.)⁹⁵

(10) *The Tied (Gumhitā)*



"A deep aspirate descending into the chest is called Tied (Gumphitā)." (*Saṅg. Ratn.* II, 3, 95.)⁹⁶

(11) *The Threefold (Tribhinnā)*



"The Threefold is a compact ornament running at one stroke through three notes without any rest." (*Saṅg. Ratn.* II, 3, 92.)⁹⁷

"A grace that touches three distinct points and amalgamates the qualities of all the three, turning round the note in a single flow, is traditionally known as the Threefold (Tribhinnā)." (*Saṅg. Sam.* I, 55.)⁹⁸

The *Bṛihaddeśhī* calls this ornament *Kuharitā* (Cuckoo) in the middle of octave and *Rechitā* (the Gallop) in the higher octave.

(12) *Struck (Āhatā)*



"Striking a neighbouring note and coming back is known as Struck (Āhatā)." (*Saṅg. Ratn.* II, 3, 93.)⁹⁹

"Striking the next highest note, touching it slightly, and quickly coming back is called "Struck" (Āhatā)." (*Simh. comm. on Saṅg. Ratn.* II, 3, 93.)¹⁰⁰

Mataṅga calls this ornament the Point (*Bindu*):

"When, after remaining a long time on a note such as Sa (Do), one touches with the speed of fire a higher note, remains there but for a semi-quaver (*Kālā* = 1/4 *mātrā*) and again comes down to the original Sa, this is the Point (*Bindu*)." (*Bṛihaddeśhī*, comm. on I, 120.)¹⁰¹

A succession of *Āhatās* makes a sort of sobbing trill, called *Gadgaditā* (*Sobbing*), much used in Indian music.

(13) *Laughing (Ullāsītā)*



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“When the notes follow one another in order this is called ‘Laughing’ (Ullāsītā).” (*Saṅg. Ratn.* II, 3, 94.)¹⁰²

“In Ullāsītā the notes ascend one following another.” (Simh. comm. on *Saṅg. Ratn.* II, 3, 94.)¹⁰³

(14) *Obeisance (Nāmitā)*



“A bowing down of the notes the expert in music call Nāmitā.” (*Saṅg. Ratn.* II, 3, 96.)¹⁰⁴

“Nāmitā is an ornament in which the notes come down to a lower pitch as if bowing.” (Simh. comm. on *Saṅg. Ratn.* II, 3, 95.)¹⁰⁵

(14a) *Freed (Nivṛittā)*



is the opposite of Nāmitā.

“Touching another note for one semi-quaver, as in Bindu, but stopping it without any tendency to come back is called Nivṛittā (Freed).” (*Bṛihaddeśhī*, comm. on I, 120.)¹⁰⁶

* * *

Out of these elements elaborate ornaments can be built, and they are called the mixed gamakās.

(15) *Mixed (Miśhritā)*

“Mixtures of these are known as the ‘Mixed’ [gamakās]. They are of many kinds.” (*Saṅg. Ratn.* II, 3, 96.)¹⁰⁷

Example of mixed gamakās, given in the *Saṅgītā Ratnākara* (3, 178–182),¹⁰⁸ are as follows:

(1) Flurry—swing
(Tiripā—āṇḍolitā)



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- (2) Melting away—shake
(Līnā—kampitā)



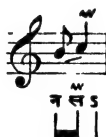
- (3) Shake—struck
(Kampitā—āhatā)



- (4) Flurry—throb
(Tiripā—sphuritā)



- (5) Melting away—throb
(Līnā—sphuritā)



- (6) Throb—struck
(Sphuritā—āhatā)



- (7) Melting away—shake—melting away
(Līnā—kampitā—līnā)



- (8) Threefold—curl—struck
(Tribhinnā—kurulā—āhatā)



- (9) Overflow—laughing—ripple
(Plāvitā—ullāsītā—vali)



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- (10) Ripple—tied—sealed
(Vali—humphitā—mudritā)



- (11) Obeisance—swing—ripple
(Nāmitā—āndolitā—vali)



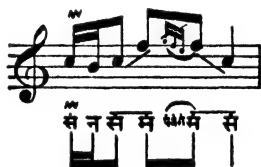
- (12) Ripple—obeisance—shake
(Vali—nāmitā—kampitā)



- (13) Swing—overflow—much laughing—obeisance
(Āndolitā—plāvitā—samullāsītā—nāmitā)



- (14) Flurry—swing—ripple—threefold—curl
(Tiripā—āndolitā—vali—tribhinnā—kurulā)



- (15) Threefold—melting away—throb—overflow—swing
(Tribhinnā—līnā—sphuritā—plāvitā—āndolitā)



The modern *Bhelavā*, a slow mordent at the end of a glissando, would be Vali-sphuritā.

Grahā, Amśhā, Nyāsā

In ancient music, three notes are spoken of under the names of amśhā, grahā and nyāsā.

"The note with which a rāgā must begin is called Grahā. By Nyāsā is understood the note that ends a song. The note most often used while playing is called 'amśhā'." (*Sanḡ. Darṡ.* 163.)¹⁰⁹

The use of the terms grahā and amśhā is a little confusing, for their meaning is taken differently by authors of different periods. Some understand the "initial note" (grahā) as the first note of the mode, that is the tonic; others take it as the first note of a melody, which may well be any note. But this last interpretation seems hardly justified.

Similarly the "main note" (amśhā) is taken to mean sometimes the tonic and sometimes the predominant note, the "sonant" or vādī.* The more ancient authors seem to have used the word in the first sense. Thus the *Nāṭyā Śhāstrā* takes the word grahā as synonymous with "amśhā" and meaning the tonic:

"In all the modal scales the initial note (grahā) is equivalent to the main note (i.e. the tonic). The whole music takes its significance from this main note (amśhā) which is the same as the initial note (grahā)." (*Nāṭ. Śh.* 28, 71, also quoted in *Bṛihaddeśhī*, comm. on 197.)¹¹⁰

The *Bṛihaddeśhī*, also uses the term "amśhā" (main note) in the sense of "tonic" (basic note, Sa):

"The main note by relation with which a mode, a rāgā, is manifested is the amśhā (i.e. the tonic, Sa)." (*Bṛihaddeśhī*, comm. on 1, 196.)¹¹¹

"This amśhā-svarā is the vital note (Jīvā-svarā, the tonic)." (*Chaturdaṇḍī Prakāśhikā*.)¹¹²

In the later music "Sa (C) is the initial (grahā, i.e. the tonic) of all the rāgās." (*Rāgā Mālā*.)¹¹³

But Śhārṅgadevā, on the other hand, identifies the "amśhā" the main note, with the "sonant", the vādī:

"Because it is most used during a performance, the vādī (sonant) is called amśhā (main note)." (*Sanḡ. Ratn.* 1, 7, 34.)¹¹⁴

This is also the view of Abhinavā Guptā, in his commentary on the *Nāṭyā Śhāstrā*:

* See below: the Sonant (Vādī), p. 125.

"The amśhā svarā is the same as the vādī." (Abhinavā Gupta, comm. on the *Nāṭya Śhāstrā* 28, 23.)

"The [note] that is most used is also called amśhā." (*Bṛihaddeśhī*, comm. on 1, 196.)¹¹⁵

"The structure of the mode entirely depends on the amśhā (tonic), from which it begins, which separates the high or low octaves, and from which its expression is derived. The amśhā is, further, the initial and final note (grahā and nyāsā), the phrase-final, part-final, and general-final note (apanyāsā, vinyāsā, sannyāsā), the centre round which the mode revolves. These are its ten characteristics." (*Nāṭ. Śh.*, also quoted by Kallināthā, *Sanḡ. Ratn.* comm. 1, 7, 29-34.)¹¹⁶

PART III

THE DEFINITION OF THE RĀGĀS

नारं वसामि वैकुण्ठे योगिनां हृदये न च ।
मद्वक्ता यत्र गायन्ति तत्र तिष्ठामि नारद ! ॥

“I do not dwell in heaven, nor in the heart of yogis. There only I abide, O Nārada, where my lovers sing.” (*Nārada Samhitā* I, 7.)

CHAPTER VII

THE RĀGĀS

Rāgās or Modes

रञ्जयतीति रागः

“That which charms is a rāgā.”*

UNLIKE Western music, which constantly changes and contrasts its moods, Indian music, like Arabic and Persian, always centres in one particular emotion which it develops, explains and cultivates, upon which it insists, and which it exalts until it creates in the hearer a suggestion almost impossible to resist. The musician can then, if his skill be sufficient, lead his audience through the magic of sound to a depth and intensity of feeling undreamt of in other musical systems.

The notes which are to convey certain definite emotions or ideas must be carefully selected from the twenty-two intervals of the śhruti scale and then grouped to form a mode, a rāgā. Any artificially formed scale is not necessarily a rāgā, for its meaning may be confused and without appeal. The essential feature of a rāgā is its power of evoking an emotion that takes hold of the hearers like a spell.

The better all the notes that form a mode combine to express one definite mood, the more attractive the rāgā and the more powerful its magic. The mode must seize the mind and hold it as if enchanted. Then the mind “is charmed and becomes lost in it.” (*Rāgā Vibodhā* I, 4.)¹¹⁹

“A rāgā, the sages say, is a particular form of sound in which notes and melodic movements appear like ornaments and enchant the mind.” (*Saṅg. Darṣ.* 2-1.)¹²⁰

Rāgās vary indefinitely. The number of rāgās theoretically possible is almost limitless. In practice, however, only a few

* “The word ‘rāgā’ is obtained by adding the suffix ‘ghan’ (which indicates ‘doing’) to the root ‘rañj’, ‘to please’.” (*Saṅg. Darṣ.* comm. on 2-1.)¹¹⁷

“That group of notes (svarās) which charms is a ‘rāgā’: so say the wise.”¹¹⁸

hundred rāgās are generally used, but, as we have seen, their classification is often confused, the same rāgās having different names in different provinces, and different rāgās the same name. But, of course, this has very little importance musically.

Moods, Colours and Notes

Each of the notes of the scale has its own kind of expression and a distinct psychological or physical effect, and so it can be related with a colour, a mood, a metre, a deity or one of the subtle centres (chakrās) of the body. These correspondences are given an important place in all Sanskrit treatises on music. Since a complete list of them would be very lengthy, only the correspondences of notes with moods and colours will be given here as an example.

“Love (śhrīṅgārā), laughter (hāsyā), compassion (karuṇā), heroism (vīrā), wrath (raudrā), fear (bhayānakā), disgust (bībhatsā), wonder (adbhutā) and peace (śhānti) are the nine moods of dramatic art. . . .

Of these, for laughter and love, Madhyamā (fourth) and Pañchamā (fifth) are used.

In the heroic mood, in wrath and wonder, Śhaḍjā (tonic) and Pañchamā (fifth) (or Rīṣabhā, second);*

for compassion, Nīṣhādā (Ni k., minor seventh) and Gāndhārā (Ga k., minor third);

in disgust and fear, Dhaivatā (sixth);

in peace, Madhyamā (fourth).” (*Viśh. Dharm.* III, 18.)¹²²

“Śhaḍjā (C, the tonic) is bright like the petals of a lotus.

Rīṣabhā (D) is like a parrot.†

Gāndhārā (modern Ga k., E♭) is golden.

Madhyamā (F) is like jasmin.

Pañchamā (G) is dark (or, of the colour that attracts).‡

Dhaivatā (A) is yellow.

Nīṣhādā (modern Ni k., B♭) is of all colours.” (*Bṛihaddeśhī* I, 77, and *Nār. Śhik.* IV, 1-2.)¹²⁴

* The *Bṛihaddeśhī* says:

“Śhaḍjā (tonic) and Rīṣabhā (second) in the heroic mood, in wrath and wonder.” (*Bṛihaddeśhī* I, 84.)¹²¹

† The *Saṅgītā Ratnākara* (I, 3, 54) says that Rīṣabhā (D) is tawny (Piñjarāḥ).

‡ “That which attracts is called ‘Kṛīṣhṇā’ (dark).”¹²³

The Description of Rāgās in Verses and Pictures

The correspondence of the notes with colours, emotions, deities and so on makes possible a graphic representation of the modes. And the rāgā as a whole determines a state of feeling which can also be expressed in poems or in pictures. But it must be remembered that, since many rāgās have changed their form, these pictures and poems often no longer accurately represent the rāgā after which they are named.

All these verses are traditionally known to musicians, though they do not always know the names of the books from which they are taken. Most of the verses, later reproduced in the *Saṅgītā Darpaṇā*,* the *Chatvārimśach'hatā Rāgā nirūpaṇam*, the *Śhivā tattvā Ratnākara*, the *Rāgā Sāgarā* and several other works, seem originally to have come from the work of Kohalā now believed lost. Further verses are quoted, without reference, in the nineteenth-century *Rāgā Kalpā drumā*.

The Four Phases in the Development of a Rāgā

A rāgā is generally developed through four phases, called Ṣthāyī, Antarā, Sañchārī and Ābhogā.

I. The *STHĀYĪ* (The Pallavi of South Indian music) establishes the theme, starting from the middle tonic (middle Sa). It is focused on the sonant (vādī) and though it never rises above the B (Ni) of the middle octave, it descends as deeply as possible into the lower octave.

II. *ANTARĀ* (the Anupallavi of South Indian music) starts from the middle of the middle octave and develops mainly in that and the upper octave. It is focused on the consonant (samvādī).

III. *SAÑCHĀRĪ* (the Charaṇam of South Indian music) begins from the higher C (Sa) and moves freely in all three octaves.

IV. *ĀBHOGĀ* is a concluding variation, also starting, as a

* In several of the verses describing the rāgās, we have to follow the quotations of the *Saṅgītā Darpaṇā* given in the *Śhivā tattvā Ratnākara* rather than the text of the available edition of the *Saṅgītā Darpaṇā* itself, which often seems corrupt.

rule, from the higher C (Sa). In songs, it often contains the name of the composer.

In songs the sthāyī is sung again after each part.

In late medieval music, these four phases were rather differently divided. They were called udgrāhā (prelude), sthāyī (theme), sañchārī (variation) and muktāyī (conclusion).

Śhrī Nivāsā in his *Rāgā Tattvā Vibodhā* describes them as follows:

“The melodic figures with which one begins are called udgrāhā (prelude). The fixed melodic figures which do not as a rule appear at the beginning or the end are known to experts as sthāyī (the theme). The mixed theme, with ascending [and descending] vocalization, is called sañchārī (variation). Where the mode comes to a rest is called samāpti (conclusion).”¹²⁵

Styles of Singing or Playing

There are many distinct styles in which the variations of a rāgā may be sung or played. Some of the most important are here briefly described.

A. STYLES OF SINGING.

1. ĀLĀPĀ is the sober exposition of the theme in slow time, with portamentos but no elaborate ornaments.

2. SVARĀMĀLIKĀ, OR SVARĀ-GRĀMĀ, OR SA RI GA MA is Ālāpā in which the name of each of the notes is sung, as is sometimes done in the Western sol-fa system. •

3. DHRUPADĀ is Ālāpā with words. It is solemn and religious in style, usually sung in slow time and using only the more sober rhythms (tālās). It is the noblest and also the most difficult style of singing.

Bhāvā Bhaṭṭā in his *Anupā Saṅgītā Ratnākarā* defines Dhrupadā as follows :

“Dhruvāpadā is traditionally known as a divine form of song that shines in the language and literature of the Middle Country. Composed of two or four sentences expressing the emotion of love, it is sung by both men and women. It consists of a poem set to the ālāpā of a rāgā with repetition of final syllables and of groups of syllables conveying different

meanings. It has a metrical introduction in two verses, a prelude, a chorus, and a final stanza of noble styles." (*Anupā Saṅgītā Ratn.* I, 65-67.)¹²⁶

4. JHORĀ is Ālāpā without portamentos. (Almost the whole of Western vocal music is in Jhorā.)

5. TANJIHORĀ is Jhorā sung quickly.

6. KHĀṆḌĀRVĀṆĪ DHRUPADĀ is Jhorā sung with each note repeated several times as if the voice were shaking.

7. In KHYĀL simple ornaments are used, particularly ascending and descending vocalizations, trills and grace notes (gamakās) and repeated groups of notes or melodic figures (tānās). Khyāl is charming and light, often used for love-songs. It is usually sung in madhyā tālā (moderate tempo).

8. ṬAPPĀ is a very elaborate style of singing in which each note of the Dhrupadā prototype is delicately ornamented without, however, breaking or obscuring the general melodic line. It is usually sung in madhyā tālā.

9. ṬHUMRĪ combines Khyāl and Ṭappā, using all ornaments (gamakās), and repeating each word or line in varied styles. It is very lively and adapted to pantomime and dancing. It is usually sung in madhyā tālā. It has only one sthāyī and one antarā.

10. TELLANĀS are sung rhythmically with the syllables (bols) used to represent the strokes of the drum.

11. DĀDRĀS are folk-songs in Dādrā tālā.

12. GHAZALS (of Persian origin) are love-lyrics sung as a sort of light popular Ṭhumrī. They consist only of an antarā, with a simple melody.

13. BHAJAN is a religious popular song with a fixed tune accompanied by rhythmic instruments, often sung in mixed rāgās.

14. KĪRTAN, similar to Bhajan, is a succession of religious songs with changes of mood and rāgā, chiefly developed in Bengal.

B. STYLES OF PLAYING (ON STRINGED INSTRUMENTS).

1. VILAMPAT is the development of the theme in slow time with portamentos, etc. It corresponds with the Ālāpā in singing.

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2. JHORĀ is played, on the vīnā, with the first two fingers only. It is the bare melody, each note separate, with neither portamento nor ornament.

3. JHALĀ is a rhythmic style in which each note of the melody is followed by a fixed number of rhythmic strokes on the tonic. For example:



4. THONK resembles Jhorā, but is played loud and fast.

5. THONK-JHALĀ is a mixture of Thonk and Jhalā.

6. In TARPARAN the strings are struck by rapid front and back strokes of the finger, very much as one does on the mandoline or the Russian balalaika.

CHAPTER VIII

DEFINITION OF THE RĀGĀS

The Fifteen Elements in the Definition of a Rāgā

FROM the technical point of view a rāgā is essentially a scale with a tonic and two axial notes, but it has further characteristics.

The different elements in the definition of a rāgā have been grouped here under fifteen main headings. Their application to each individual rāgā will be found in the second volume of this book.*

For the sake of clearness, these fifteen headings have not been kept in exactly the same order in the definition and in the application, but they can be traced by their numbers.

For the clear understanding of these fifteen elements we shall also have to explain a few technical points which have not so far been dealt with.

The Tuning of the Instruments (I)

The frets of the stringed instrument, or the tunable keyboard, must first be set to the proper intervals, the proper śhrutis. Both the exact śhrutis written above the notes, and their conventional notation for the Indian keyboard† are given with the notation.

The true tuning, by which the expression of the rāgā is defined, is always that of the descending scale. In rāgās where there is a difference of śhruti in ascent and descent but the instrument used does not provide two different śhrutis, the scale tuned for descending can generally be used for ascending but never the tuning of the ascending scale for the descending one.

* To be published shortly (1949).

† See p. 79.

Class (Jāti) (3)

The Indian scale is divided into seven regions or sections ruled by the seven notes, or svarās, of the diatonic scale and named after them.

As we have seen already, if, in any mode, one or more notes be used from each division, the mode is called "complete" (sampūrṇā), but if one division is not represented, whatever the number of notes in the other divisions the mode is called hexatonic (ṣhāḍavā); if two divisions are not represented the mode is pentatonic (auḍavā).

This is very like the Greek division. Since both the chromatic and enharmonic genera have, by definition, a third in each tetrachord, that is one diatonic note omitted, they will necessarily be auḍavā, whereas modes having one tetrachord chromatic and the other diatonic will be ṣhāḍavā.

The classes obtained by thus grouping modes according to the number of their notes were known in ancient music as mūrch'hanās (see above, p. 101) but in later texts, particularly in the Eastern part of Northern India, they are called "jātis".

"Class (jāti), in rāgās, is considered to be of three kinds—auḍavā of five notes, ṣhāḍavā of six, sampūrṇā (complete) of seven notes." (*Nārada Samhitā* 2, 60; *Saṅg. Darṣ.* 2, 6.)¹²⁷

Melodies comprising less than five notes cannot be called rāgās (modes), but are mere "melodic figures" (tānās).

"Combinations of two or three or four pleasing notes form melodic figures (tānās): a rāgā must have five or more (notes):" (*Hṛidayā Prakāśhā*).¹²⁸

Besides the three main jātis, there are modes which, in addition to the natural seven, make use of one or both of the two intercalary notes Kākali Ni and Antarā Ga. In ancient music these eight- or nine-note modes were known as the "intercalary modes" (sādhāraṇā).*

Though Viṣṇu Digambar in his *Saṅgītā Tattvā Darśhakā* does not use the term jāti, he reproduces the ancient classification, adding the three kinds of rāgās spoken of by Umāpati (quoted in *Rāgā Vibodhā*, comm. on 4, 3) and also by Mataṅgā (mentioned by Kallināthā and quoted in *Saṅgītā Darpanā* 2, 5). These are called: śhuddhā (pure), chhāyālagā (shadowed) and saṅkīrṇā (mixed).

* See above, p. 101.

They are defined as follows:

A rāgā in which there are only unaltered notes is called "pure" (śhuddhā).

A rāgā is called "shadowed" (chhāyā-lagā) when it makes use of a few notes borrowed from another rāgā, provided they do not alter the mood, but, on the contrary, enhance it.

A mixture of several rāgās is called saṅkīrṇā.

"According to Umāpati, a 'pure' rāgā charms by itself, a 'shadowed' rāgā with the help of others, a 'mixed' rāgā with the help of two." (*Rāgā Vibodhā* 4, 3.)¹²⁹

"Sampūrṇā" means "complete", "śhāḍavā" means "of six". The word "auḍavā" has given rise to unnecessary speculation among Westerners insufficiently conversant with Hindu conceptions: Fox-Strangways, for example, in his *Music of Hindostan* (p. 122) suggests that it may have come from the name of a province where the pentatonic scale was invented. But the *Saṅgītā Darpaṇā* (comm. on 2-6), clearly explains the term:

"The derivation of the word 'Auḍavā' is as follows: Uḍavā is where the planets move, hence the 'sphere of space' (vyomā). This among the elements is the fifth (ether), thus it represents the number five. From this it is clear that the number of notes of the auḍavā (the ethereal scale) is five."¹³⁰

A similar explanation is given in the *Śhivā tattvā Ratnākara*.

There are rules for the use of the jātis, in accordance with the symbolism of numbers:

"For celebrating battle, charm and beauty, in separation, or in depicting a character, the hexatonic (śhāḍavā) [class of modes] is recommended.

For destroying disease or enemies, dispelling fear or sorrow, in difficulty or in suffering, in forgiveness or when planets are unfavourable, auspicious words should be sung in the pentatonic scale." (*Śh. tat. Ratn. VI, 8, 145-147.*)¹³¹

The term jāti was also used in ancient and medieval music for mode-types:

"From intervals (śhrutis), the initial (tonic, grahā) and other notes (svarās) brought together the mode-types result, therefore they are called 'jātis' (results)." (*Bṛihaddeśhī*, comm. on I, 194.)¹³²

"Jāti" in this sense has now been replaced by the term "thāt".

Group (2)

Some of the main rāgās have, as their satellites, secondary modes with the same general characteristics and only minor differences. These are said to belong to the group of their parent rāgās. For example, Prabhāt, Bangālā, Rāmākālī, etc., belong to the Bhairavā group.

Certain books consider the chief modes masculine in character and call them "rāgās", while the secondary modes the "rāgiṇīs", are said to be their wives, or even their "sons" (putrās).

The male rāgās, originally all pentatonic scales, are usually considered to be six in number, though some count seven, eight, or nine.*

"Bhairavā, Mālakośhā, Hindolā, Dīpakā, Śhrī rāgā and Meghā rāgā, these are the male rāgās." (*Saṅg. Darṣ.* and *Śh. tat. Ratn.* 6, 8, 44.)¹³³

Ascent and Descent (Āroḥā, Avarohā) (4)

The determining element in a mode, its scale or succession of notes, often differs in ascending and descending. Many modes are, for example, pentatonic (auḍavā) or hexatonic (ṣhāḍavā) in ascent and heptatonic (sampūrṇā) descending. Some have one or two of their notes natural (śhuddhā) ascending and flattened (komalā) in descent, and so on. But the true scale of a mode, that by which its expression is defined, is always the descending scale. In all the ancient modal systems, the scale is given downwards from the higher tonic (Sa): to define a mode by giving its ascending scale first is a comparatively recent practice. Ascending scales always have an exploratory character, while descending scales, in any music, allow greater precision and clearer differentiation and should therefore always be taken as the standard.

In those parts of India where archaic forms of speech and song have been preserved (as, for example, in certain valleys of the Himalayas) songs and the playing of instruments always start from the upper tonic in a descending scale.

* The *Saṅgītā Mahārandā* speaks of twenty-one male rāgās. (3-53, etc.)

The Sonant (Vādī) (5)

वादी स्वराणां राजा स्वात्

“The sonant (vādī) is the king of notes.” (*Śaṅg. Mak.* 2-7.)

Besides the tonic (the Sa), always fixed, each rāgā has a predominant note from which all variations begin and in which they end: it is always accentuated and bears long pauses. This main note is called vādī (that which speaks). The expression of the vādī is the predominant expression of the rāgā: its character determines the mood.

“The chief element in which the power lies of bringing out a particular mood, a rāgā, is the sonant (vādī).” (*Śaṅg. Darṣ.* 1-68.)¹³⁴

“The sonant (vādī) is the note most used while playing; it is the king (of the melody).” (*Rāgā Vibodhā* 1, 37.)¹³⁵

The commentary on the *Rāgā Vibodhā* adds: “the sonant (vādī), being constantly heard, dominates the melody. Because it explains and heralds the mode, it is called vādī, (that which speaks).”

The “Consonant” (Samvādī) (6)

यन्त्री संचालिकस्यते

“The consonant is like a minister.” (*Śaṅg. Mak.* 2, 7.)

Corresponding notes in the two tetrachords into which the octave is divided always have similar expressions. A fourth or a fifth above the vādī another note will therefore be found that responds to it, playing in the upper tetrachord a similar, though less important rôle. This note is called “samvādī” (consonant).

“The nature of the ‘consonant’ (samvādī) is to reinforce the ‘sonant’ (vādī) by which the expressiveness of the mode is engendered.” (*Bṛihaddeśhī*, comm. on 1, 63.)¹³⁶

Very rare exceptions apart, the samvādī is always a fifth or a fourth above the vādī. This corresponds with an interval of twelve or eight śhrutis.

“The notes that have between them an interval of twelve or

eight śhrutis (perfect fifth and fourth) are called 'consonant' (samvādī). They are like ministers." (*Rāgā Vibodhā* 1, 37.)¹³⁷

The Commentary adds: "Samvādīs . . . sustain the . . . impression created by the vādī, just as ministers carry out the order of the king."

"The notes between which there are eight śhrutis (perfect fourth) or twelve śhrutis (perfect fifth) are said, in relation with one another, to be consonant (samvādī). Such are Ni and Ga (B and E) or Ri and Dha (D and A)." (*Śaṅg. Darṣ.* 1, 69-70.)¹³⁸

Rāgās in which the samvādī is a fifth above the vādī are called "pañchamā samvādī" (having a fifth as main consonance); those in which the samvādī is a fourth above the vādī are called "madhyamā samvādī" (having a fourth as main consonance). Pañchamā samvādī rāgās have a clear, active, brilliant expression; madhyamā samvādī rāgās are passive, dormant, soft.

Assonant (Anuvādī)

अनुवादी च श्रुत्यन्तः ।

"The 'anuvādī' is like a servant." (*Śaṅg. Mak.* 2-7.)

The notes of a mode that are neither "sonant", nor "consonant" are called "assonant" (anuvādī):

"By those who see the subtle cause of things the note that is neither the sonant nor the consonant and yet is not 'dissonant' (vivādī) is called assonant (anuvādī)." (*Śaṅgītā Pārijātā*, 81-83.)¹³⁹

Dissonant (Vivādī)

स्वरो विवादी वैरी स्यात्

"Dissonant (vivādī) notes are enemies." (*Śaṅg. Mak.* 2-7.)

Notes that do not belong to a rāgā or, if they do, are used in defiance of its rules are called "dissonant" (vivādī): They destroy the expression.

"That which in a given mode breaks the charm is un-

doubtedly 'dissonant' (vivādī) from the notes of that mode. . . . This vivādī is like an enemy." (*Saṅgītā Pārijātā*, 83-84.)¹⁴⁰

"Melodic variations that would introduce a vivādī note should always be avoided."¹⁴¹

The Relation between Tuning and Scale

It should be noted that there is a strict correspondence between the tuning of the different notes, the ascending and descending scales and other peculiarities of a rāgā. Certain śhrutis are related by such intervals that it is impossible to play them in succession. If, therefore, the expressions they represent have to be brought together to constitute the mood of a certain rāgā, their use may require melodic artifices so that they may never be in direct succession. The tuning, the ascending and descending notes, the sonant and consonant, the theme and the expression form a homogeneous entity which very often, for mathematical as well as acoustic reasons, simply cannot be other than it is. Rāgās can therefore never be considered as the invention of some inspired artist: they can at best only be discovered as we discover astronomical or other physical laws that represent some aspect of the universe in which we live—laws which it is not in our power to modify.

Tetrachords and Mode-types (Thāṭs) (8 and 12)

As we have already seen, Indian, like Greek and Arab music, does, though not very generally nowadays, divide the scale into two tetrachords or groups of four notes, ruled respectively by the "sonant" (vādī) and the "consonant" (samvādī): the lower tetrachord C D E F (Sa Ri Ga Ma) is called pūrvāṅgā (first limb), the higher tetrachord G A B C (Pa Dha Ni Sa) uttarāṅgā (higher limb). This is not an artificial division but corresponds with a physical fact, for, as we have said, there is great similarity of expression between the corresponding notes of the two tetrachords. In many rāgās the division of the two tetrachords is identical.

In analysing each rāgā we shall give, with their ratios, the different intervals that arise between the notes of each tetrachord.

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Indian music envisages six main types of tetrachord—corresponding with a perfect fourth, and six secondary types corresponding with an augmented fourth. These are obtained in the following way:

If we take the twelve notes of the chromatic harmonic and divide them into lower and upper tetrachords (leaving between them F#, Ma tivṛā), we see that in each case six different types of tetrachord are possible:



If we combine each of the possible lower tetrachords with each of the possible higher ones, we obtain thirty-six different scales of seven notes. And if, in each of these thirty-six scales, we then replace F (Ma) by F# (Ma tivṛā), we obtain thirty-six further scales. The total number of theoretically possible basic scales is thus seventy-two. This classification is still used in South India where such scales are called melās or melakartās.* The theory of them is explained by Paṇḍit Veṅkaṭā Makhin, the seventeenth century systematizer of South Indian music, who, in the fourth chapter of his *Chatur-daṇḍī Prakāśhikā*, claims to have invented this mode of classification, though it is really a more ancient system already spoken of in the *Saṅgītā Sārā* of Vidyāraṇyā (1320-1380).

Since many of these scales are not in use nowadays in Northern music, this classification is usually replaced by a small number of mode-types or thāṭs (usually ten) which correspond with the approximate array, or setting, of the frets on the sitar. This artificial classification—musically inexact, for it neglects the differences of śhrutis—merely helps the player to remember the approximate tuning of a mode.

The *Rāgā Vibodhā* says (comm. on 1, 8):

"The particular arrangements of the notes (svarās) into

* The term "melā" can however be used for any sort of mode-type.

"A melā is a group of sounds from which rāgās (modes) will be made manifest." (*Saṅgītā Pārijātā*).¹⁴⁸

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common scales (melās) under which modes (rāgās) can be grouped, are spoken of as 'ghāṭās' [or thāṭs]."¹⁴³

These "thāṭs" or mode-types should not be mistaken for the rāgās or modes that bear the same names, for the latter may have more or fewer notes and they correspond with an accurate tuning, whereas the tuning of the mode-types is only approximate.

The ten thāṭs or mode-types are given as follows:

"The first is Kalyāṇī (Kalyāṇā) melā, the second Velāvalī (Bilāval), the third Khammājā, the fourth Bhairavā, the fifth Bhairavī, the sixth Āsāvārī (our Yavanāpurī), the seventh Toḍī, the eighth Pūrāvī (our Śhrī), the ninth Mārāvā, the tenth Kāfi.

Such are the ten mode-groups (melās) from which rāgās arise." (Quoted in *Śhrīmallakṣhyāsaṅgītam* II, 1, 19-21.)¹⁴⁴

They are usually given as follows:

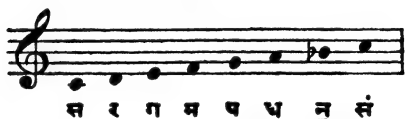
I Kalyāṇā



II Bilāval



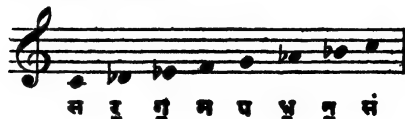
III Khammājā



IV Bhairavā

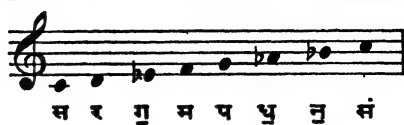


V Bhairavī

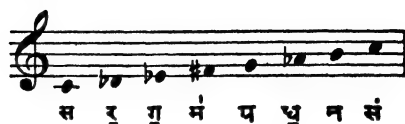


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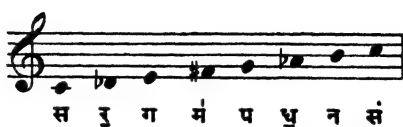
VI *Yavanāpurī* (Bhātkhaṇḍe's *Āsāvārī*)



VII *Todī*



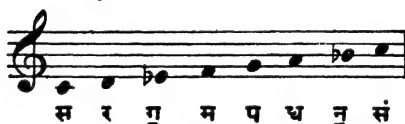
VIII *Śhrī*



IX *Mārāvā*



X *Kāfī*



The eighth thāt, Śhrī, is given by Bhātkhaṇḍe as Pūrāvī, but since the Pūrāvī we give here has an A natural (śhuddhā Dha), its name could not be given to a thāt containing an A flat (Dha komalā). About the scale of Śhrī there is no divergence of opinion.

The Number of Rāgās

In each of the seventy-two possible basic scales of seven notes we can have: one mode using the seven notes in ascent and in descent; six different modes using the seven notes in ascent and six notes in descent; fifteen different modes using the seven notes in ascent and five notes in descent; six different modes using six notes in ascent and seven notes in descent;

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fifteen different modes using five notes in ascent and seven notes in descent; thirty-six different modes using six notes in ascent and six notes in descent; ninety different modes using six notes in ascent and five notes in descent; ninety different modes using five notes in ascent and six notes in descent; two hundred and twenty-five different modes using five notes in ascent and five notes in descent.

This gives a total of 484 modes in each scale, or 64,848 modes in the seventy-two scales.

If we now consider that there are modes of which the ascending and descending scales are different, modes which combine several scales, etc., we see that the number of possible modes is practically unlimited. It would be difficult in a lifetime to hear them all, even once. Ahobalā speaks of 18,678 modes of seven notes, 31,050 modes of six notes and 17,505 modes of five notes in the Ma grāmā alone.

Śhrī Kṛṣṇānandā Vyāsā in his *Rāgā Kalpadrumā* (Introduction, p. 1) writes:

“For the sake of the 16,108 milkmaids, the Dark Lord, Śhrī Kṛṣṇā, took the same number of shapes. Each of the milkmaids for each of the Kṛṣṇās sang a different rāgā in a different rhythm, thus giving birth to 16,108 modes. These rāgās and rāgiṇīs later became famous in the earthly world.”¹⁴⁵

Time of Playing (7)

एवं कालविधिं ज्ञात्वा गायेद्यः स सुखी भवेत् ॥
रागावेक्षणगानेन रागाणां हिंसको भवेत् ।
यः शुणोति स दारिद्र्यं आयुर्नश्यति सर्वदा ॥

“One who sings knowing the proper times remains happy. By singing rāgās at the wrong time (of day) one ill-treats them. Listening to them, one becomes impoverished and sees the length of one's life reduced.” (*Saṅg. Mak.* 23-24.)

The cycle of the day corresponds with the cycle of life which also has its dawn, its noon, its evening. Each hour represents a different stage of development and is connected with a certain kind of emotion. This cycle of sounds is ruled by the same mathematical laws as all other cycles. This is why there are natural correspondences between certain hours and the moods evoked by certain musical modes. Played at the proper time, musical modes develop naturally in favourable conditions. Orthodox musicians in India never play a

rāgā at any other than its proper time, for at the wrong hour it could never be developed so perfectly, nor could it so greatly move an audience. The organist who, in the West, played a funeral march at a wedding would, to say the least, appear lacking in taste. In the same way the Indian musician who, disregarding the surroundings and the mood of his hearers, plays a morning mode in the evening appears utterly lacking in sensibility.

There are certain characteristics by which a rāgā shows at what time it should be played. Rāgās to be played between midday and midnight have their sonant (vādī) in the lower tetrachord (pūrvā aṅgā), C to F (Sa to Ma). They are called "Pūrvā rāgās". Rāgās to be played between midnight and midday have their sonant (vādī) in the upper tetrachord (uttarā aṅgā), G to upper C (Pa to upper Sa). They are called "Uttarā rāgās".

Modes that correspond with crucial moments (sunrise, sunset, midday, midnight, solstice, equinox, etc.) often use both F♯ and F♭ (Ma tivṛā and Ma śhuddhā).

Besides these, Bhātkhaṇḍe indicates the following time-characteristics, which are very generally followed.

(1) Modes sung at sunrise and sunset are known as "samdhi-prakāśhā (twilight) rāgās". Most of them include Ri and Dha komalā (D and A flat).

(2) Modes with Ga and Ni komalā (E and B flat) usually belong to the middle of the day or night.

(3) Modes with Ri, Ga Dha and Ni śhuddhā (D, E, A and B natural) are usually played after twilight (samdhi-prakāśhā)—in the first quarter of morning or night.

(4) Modes sung before twilight—in the last quarter of day or night—insist on the tonic, the fourth and the fifth (Sa Ma and Pa).

The rāgās of evening twilight never omit Ga and Ni (E and B), and the rāgās of morning twilight never omit Ri and Dha (D and A).

These rules are not, however, absolute.

Scale-Types (Greek Genus) (9)

The ancient Greek classification of the scales into three genera, Enharmonic, Chromatic and Diatonic, has a dual meaning. The fundamental one, used by the Pythagoreans,

referred to the three fundamental divisions of the octave into twenty-two (the Greeks, like the South Indians, made it twenty-four), twelve and seven (or nine).*

Later on, this classification was taken to refer to typical modes built upon such genera.

According to the interpretation of this later aspect of the Greek genera which we find in Arabic writers, a mode is called *diatonic* if each tetrachord has two full tones, *chromatic* if each has an interval of a minor third (three half-tones), *enharmonic* if each has an interval of a major third (four half-tones).

Though this kind of classification is not usually followed by Indian musicians, it is indicated here to facilitate comparison with other systems.

Characteristics and Expression (IO and II)

Certain rāgās have peculiarities of scale or of tuning that modify their expression.

The expression of a mode is the sum of the expressions of its different notes, each depending upon its individual relation with the tonic. According to the theory of the śhrutis, many notes cannot have the same kind of expression and, therefore, in a scale, there are necessarily contrasts. This is why the most intense rāgās have often incomplete scales, for they suppress as far as possible notes that would not support the predominant expression.

Thus a very sad rāgā will leave out the fifth (Pa) because a fifth always expresses sunshine, joy. A very passionate rāgā will have no natural fourth (śhuddhā Ma) since that always expresses peace, serenity.

These contrasts between the notes are a further reason why the rāgās considered masculine in ancient music were always pentatonic, for a pentatonic scale gives a much stronger and more coherent expression than an heptatonic scale which necessarily shows contrasts, indecisions, subtleties, and so is more feminine in character.

When sounds are used in the treatment of mental or physical disease, the number of notes must be further reduced to a few sounds constantly heard, so as to create an overwhelming impression in one direction only.

* See p. 72.

Representation of Intervals by Ratios

In practice, so as to be easily understood, for each interval we shall use the nearest simple ratio sufficiently accurate to represent it. We shall always represent a major tone by $9/8$, a minor tone by $10/9$, a major half-tone by $16/15$, a limma by $256/243$, a minor half-tone by $25/24$, and so on, though these figures may sometimes be slightly inaccurate. For example: though the major tone is the sum of a major half-tone and a limma we shall write it:

$16/15 \times 256/243 = 9/8$, which is incorrect, for the major half-tone would then become the "apotome" $\frac{2187}{2048}$; or, if we keep the major half-tone as $16/15$, the limma would be $135/128$, because we have either $\frac{2187}{2048} \times \frac{256}{243} = \frac{9}{8}$ or $\frac{16}{15} \times \frac{135}{128} = \frac{9}{8}$.

Similarly, the minor tone is equal to 2 limmas, and we therefore represent it by $\frac{256}{243} \times \frac{256}{243} = \frac{10}{9}$ — incorrect, for $\frac{256}{243} \times \frac{2430}{2304} = \frac{10}{9}$. But since, actually, $\frac{256}{243} = 22.63 \text{ sav.}^*$, $\frac{135}{128} = 23.12 \text{ sav.}$ and $\frac{2430}{2304} = 23.13 \text{ sav.}$ are practically equivalent;

and since, from the point of view of expression, the difference is non-existent, being in the first case half a savart and in the second $1/100$ th of a savart (that is to say, in one case $1/11$ th of a comma or $1/100$ th of a tone, and, in the other case, $1/10,000$ th of a tone), and since, again, the simple ratio represents the interval quite clearly, it will be easy for the student who so desires to find out for himself the exact ratios.

Śhrutis (Analysis of Expression) (13)

As we have already said, the expression of a mode is the sum of the expressions of its different notes, defined by their relation with the tonic. In each rāgā, each of the different

* See first footnote to page 47.

notes has a definite expression. This is very evident if their pitch is accurate and without variation.

The expressions given in our notation for each note of each rāgā have been compiled experimentally and verified over and over again, players and hearers being always in perfect agreement as to the meaning of the notes.

There may, however, remain some slight inaccuracies in the accidental śhrutis used for particular notes in certain melodic figures. There may also be different schools for the *expressive* interpretation of the rāgās. Only long practice and experiment by different musicians would allow us to correct and perfect every detail in the use of the accidental śhrutis appearing in each rāgā.

Theme (Rūpā) (14)

For each rāgā there are a few very typical groups of notes from which it can at once be recognized. These form the main theme (rūpā).

Outline (15)

It is impossible to write down the ever-changing development of a rāgā. We have to limit ourselves to noting in its simplest form, the first part of an average "exposition of the theme" (ālāpā). From this, however, the student should be able to perceive the complete form of the rāgā and so, following the rules, proceed to the variations.

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स्वाधी वयः स' विज्ञेयः परावन्वर्ष' नायकी ॥
एतस्मिन्मयाह वयः अस्मारी परिकीर्तिवः ।
(१. त्रयोगस्य वैककस्य, स्वादेकस्यैव, Śh. tat. Ratn, Saṅg. Ratn) (२. वयस्य id.) (३. व)

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- 60 परस्परं स्वराणां तन्मात्रं तानाः ।
- 61 तानो द्विधा द्युद्वानः कृतान इति क्रमात् ।
एकैकरागवात्राभिर्व्यक्तिसंपादकस्तु यः ॥
स द्युद्वान इत्युक्तः कृतानः स उच्यते ।
यस्तु रागद्वयकूर्तिः साधारणतया स्थितः ॥
अन्वकारास्तु प्राचीनाः कस्याचिदर्थं कारणात् ।
प्रयोजनं लक्ष्यगावि न वदन्ति परिरुद्धम् ॥
चतुरशीतीति संख्या सुस्पष्टा सर्वसम्प्रता ।
प्रस्तारो मूर्धनायाः स्थापकदाचिदेतदुचितः ॥
- 62 विस्तार्यते येन रागः स तानः कथ्यते बुधैः ।
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द्युद्वतानरहस्यं तल्लक्ष्ये नेत्र परिरुद्धम् ।
इति तेषां सप्ताख्यानं मध्येऽत्र निष्प्रयोजनम् ॥
- 63 पूर्णाः पञ्चसहस्राणि चत्वारिंशद्युतानि तु ।
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लक्षद्वयं सहस्राणि द्वयशीतिर्द्वं शते तथा ॥
चत्वारिंशत् संख्याताः
- 65 क्रमान्स्वराणां सप्तानामारोहधारोहणम् ।
मूर्धनेत्युच्यते ग्रामद्वये ताः सप्त सप्त च ॥
- 66 द्वादशस्वरसप्तमा ज्ञातव्या मूर्धना बुधैः ।
जातिभाषादिसिद्धयर्थं तारमन्त्रादिसिद्धये ॥
- 67 तत्र सप्तस्वरमूर्धना चतुर्विधा पूर्णा चारवा औड्यिणा-
साधारणा चेति । तत्र सप्तभिः स्वरैर्वा गीयते सा पूर्णा ।
चदभिः स्वरैर्वा गीयते सा चारवा, पञ्चभिः स्वरैर्वा
गीयते सा औड्यिता, काकल्पैरन्तरं स्वरैर्वा गीयते सा
साधारणा ।
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- 70 प्रसङ्गादिः प्रसङ्गान्तः प्रसङ्गाद्यन्तसंज्ञिकाः ।
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प्रस्तरेऽथ' प्रसादः स्यात्' सन्देहं स्यादिति स्थिताः ।
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पा मा री सा इति प्रसङ्गान्तः ।
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री सा इति प्रसङ्गाद्यन्तः ।
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नी सा इति प्रसङ्गवन्धः ।
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अरोरुपक्रमादन्ते द्वादशाप्यरोहण्ये ॥
- 76 अनेन सप्तालङ्कारा गीतज्ञैरुपदर्शिताः ।
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- 77 स्वभुतिस्थानसंभूतां वायां भुत्यन्तगमयाम् ।
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कम्पितो नाम गमकः स विज्ञेयो मनीषिभिः ॥ "
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गमकः ।
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सा मन्द्रया गम्यते स विन्दुः ।
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- 103 यस्तुत्तरोत्तरं क्रमात्स्वरानारोहति स उक्तासित इत्युच्यते ।
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नायित इत्युच्यते ।
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तिरिपस्फुरितो लीनस्फुरितः स्फुरिताहतः ॥
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यत्नवृत्तो* भवेद् गेयः सोऽंशो ग्रहविकल्पकः* ॥
(1. मंश एव हि) (2 चं) (3 गानं) (3. स्थितः)
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- 112 अंशस्वरस्त्वसावेव जीवस्वर इति स्मृतः ।
- 113 षट्जः सर्वत्र रागे च ग्रहः
- 114 प्रयोगे बहुलः स स्याद्वाद्यंशो योग्यतावशात् ।
- 115 यश्च बहुप्रयोगतरः सोऽम्पंशः
- 116 रागश्च यस्मिन्सति यस्याच्चेव प्रवर्त्तते ।
नेता च तारमन्द्राणां योऽन्यैर्वृत्तपञ्चभ्यते ॥
ग्रहापन्यासविन्याससन्त्यासन्त्यासयोगतः ।
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- 117 रज्जुपातोऽर्थमन्ययेन निष्पन्नो रागशब्दः ।
- 118 रज्जुकः स्वरसंघर्षः स रागः कथितो बुधैः ।
- 119 रज्जन्ति तल्लीना भवन्ति
- 120 योऽयं ध्वनिविशेषस्तु स्वरवर्षविभूषितः ।
रज्जुको जनचिचार्ना स रागः कथितो बुधैः ॥
- 121 षड्मर्षभौ तथा ज्ञेयौ बीररीद्रादुत्तेषु च ।
- 122 मृङ्गारहास्यकण्ठरीद्रीरभयानकाः ।
बीभत्साद्भुतशान्ताख्या नव नाभ्यो रसाः स्मृताः ॥
... ..
तत्र हास्यमृङ्गारयोर्मध्यमपञ्चमौ । बीररीद्रादुत्तेषु षड्ज-
अर्षभौ । कण्ठे निपाद्यान्धारी । बीभत्सभयानकयोर्धैव-
तम् । शान्ते मध्यमम् ।
- 123 कर्वाति इति कृष्णः
- 124 पञ्चपञ्चमः षट्जः ऋषभः शुक्रवर्णकः* ।
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निषादः सर्ववर्णोऽयं विज्ञेयः* स्वरखण्डकः* ॥
(1 शुक्रपिञ्जलः) (2 कुन्दसन्धिः) (3 पीतकं धैवतं विदुः)
(4 सर्ववर्णः स्थादित्येना) (5 ताः)
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(?) आद्यन्तयोभानियमस्ताने यत्र मजायते ॥
स्थायी तानः स विज्ञेयो लक्ष्यलक्षणकोविदेः ।
सचारी तु स विज्ञेयः स्थाय्यारोहविभितः ॥
यत्र रागस्य विभान्तिः समाप्तिघातको हि सः ।
- 126 गीर्वाणमध्यदेशीयभाषामाहिन्यराजितम् ।
द्विचतुर्वाक्यसम्पन्नं ननारीकयाभ्यम् ॥
शृङ्गाररसभाषाय रागालापपदात्मकम् ।
पादान्दानुमासयुक्तं पादानुपमकं च वा ॥
मतिपादं यत्र षट्पदं पादचतुष्टयम् ।
उद्वेगाहभुवकाभोगोचम ध्रुवपदं स्मृतम् ॥
- 127 औदवः पञ्चभिः शोक्तः स्वरैः षड्भिस्तु षाडवः ।
संपूर्णः सप्तभिः शोक्तो रागजातिस्त्रिधा मता ॥
or (सम्पूर्णः सप्तभिर्धैव एव रागस्त्रिधा मतः) ।
- 128 द्वौ त्रयो वापि चत्वारः स्युस्मान्ना रज्जुकस्वराः ।
पञ्चादौरेव रागः
- 129 शुद्धो रञ्जनकारी स्वेन चत्वारालगः पराश्रयतः ।
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- 130 औदवशब्दस्य व्युत्पत्तिर्यथा-उदवः नक्षत्राणि
वान्ति गच्छन्ति यस्मिन् इति उदवं व्योय ।
तच्च भूतेषु पञ्चमम् । तेन पञ्च संख्याः प्रतीयन्ते ।
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- 131 संग्रामरूपलावण्यविरहा गुणकीर्तनम् ।
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दुःस्थिते चैव सन्तापे मङ्गलाचारसंयुते ॥
औदवेन मगात्पञ्च ज्ञाने च ग्रहोभये ॥
- 132 भुतिग्रहस्वरदिसमूहाज्जायन्ते जालवः
अतो जालव इत्युच्यन्ते ।
- 133 यैरथो मालकोशश्च* हिन्दोको दीपकस्तथा ।
भीरागो मेघरागश्च यदेतं* पुष्पाः स्मृताः ॥
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- 136 यद्वादिस्वरेण रागस्य रागत्वं जनितं
हर्षिर्वाहकत्वं नाम संवादित्वम् ।
- 137 द्वादश बाह्यो भुतयोऽमास्यो संवादिनी तौ स्तः ।
- 138 भुतयोऽष्टौ द्वादश वा भवन्ति मध्ये ययोः स्वरयोः ।
संवादिनी तु कथितौ परस्परं तौ निषादगान्धारौ
स्थितयोः ...
- 139 न वादी न च संवादी न विषाद्यपि यः स्वरः ।
सोऽनुवादी विज्ञेयः सूक्ष्मदृष्ट्या विषयलैः ॥
- 140 रक्तिविच्छेदहेतुत्वं यस्मिन् रागे तु यस्य तु ।
तद्रागस्यस्वरैस्तस्य विषादित्वं भवेद्भुवम् ॥
..... विवादी शब्दबद्ध भवेद् ।
- 141 विवादी तु सदा ग्याज्यः कृचिपानक्रियात्मकः ॥
- 142 मेलः स्वरमयूहः स्याद्वागव्यंजनशक्तिमान् ।
- 143 मेलो मिलन्ति वर्गीभवन्ति
रागा येभ्यति तदाभयभूताः स्वरसंस्थानविज्ञेयाः
षा (षा) डेति भाषायाम् ॥
- 144 कल्याणमेलकस्वाद्यो विलावत्या द्वितीयकः ।
खंवाजाल्पस्तृतीयः स्याद्भैरवस्य चतुर्थकः ॥
पंचमो भैरवीनाया षष्ठस्वासावरीरितः ।
सप्तमस्तोदिकाहोऽपि पूर्व्यभिषोऽष्टमः स्थितः ॥
नवमो मारवाभिज्ञो दशमः काफिसंहितः ।
इत्येते दशमेलान्ते रागोत्पादनहेतवः ॥
- 145 सोले सहस्र एकशत आठ गोपी एतने ही श्रीकृष्ण रूप परे
एक एक गोपी एक एक श्रीकृष्ण मति एक एक राग
एक एक ताल सोले सहस्र एकशत आठ रागरागिणी
अकट किये, ताते एह रागरागिणी भूलोकमें मसिद्ध हुये ॥

